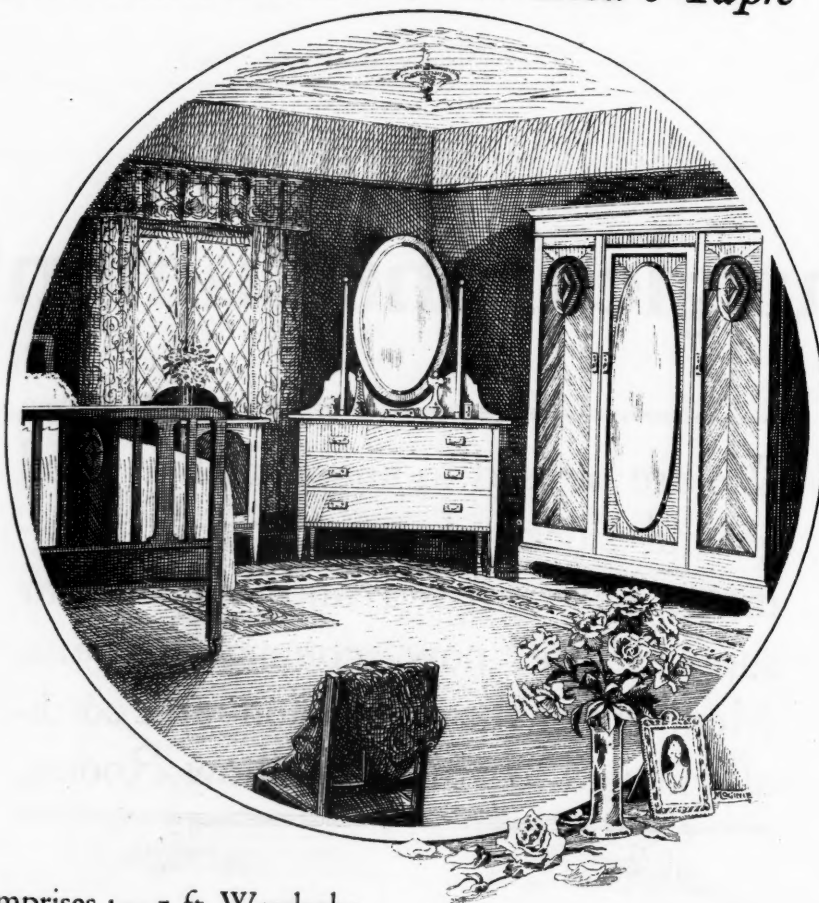


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PROSTATECTOMY: A REVIEW OF A RECENT SERIES OF ONE HUNDRED AND FORTY-SIX CASES WITH FIVE DEATHS.¹

BY S. HARRY HARRIS, M.D., CH.M. (SYDNEY),
Honorary Urologist to the Lewisham Hospital; Honorary
Urologist, South Sydney Women's Hospital.

It was originally intended to present this paper for your consideration at a later date. However, less than a month ago our Honorary Secretary requested me to endeavour to have it ready for the meeting to-night. The time has proved all too short. If the result is a somewhat fragmentary and disconnected narrative, I crave your indulgence.

General Statistics.

The patients whose cases form the subject of the present study, were operated upon between January, 1917, and December, 1921.

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 25, 1922.

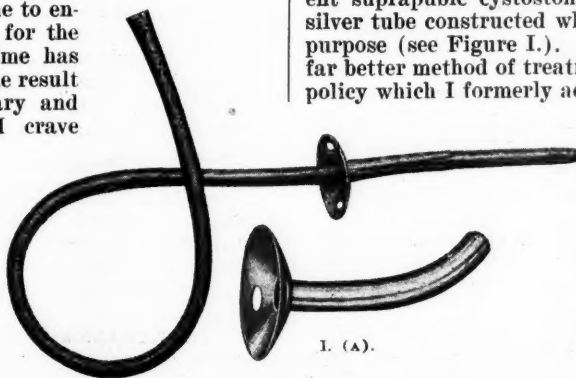


FIGURE 1.

Special Silver Tube with Catheter for Permanent Cystostomy.
1. (A) shows the Actual Size of the Tube.

During this five-year period there passed through my hands, exclusive of those seen in consultation only, one hundred and eighty-three patients suffering with general enlargement of the prostate.

Of these, one hundred and forty-six were subjected to prostatectomy, with five deaths—a mortality rate of slightly less than 3.5%.

Of the thirty-seven patients who were not submitted to prostatectomy, twenty-nine had definite palpable carcinoma. Seven of these had a permanent suprapubic cystostomy. I have had a special silver tube constructed which is very useful for this purpose (see Figure 1.). In suitable cases this is a far better method of treatment than the *laissez faire* policy which I formerly adopted. All these patients

are active, comfortable and perfectly dry at periods after operation varying from five years to seven months. Twelve others had so little discomfort that no immediate operation was advised. The remaining ten were considered beyond all operative interference.

Of the eight patients suffering from benign

enlargement of the prostate who were not subjected to prostatectomy, five were considered unsuitable for operation of any kind on account of impending dissolution. The other three, who had complete retention of urine and were intolerant of catheterization, were subjected to permanent cystostomy under local anaesthesia, the general condition being held to contra-indicate the major operation. One of these, E.L., aged eighty-two years, died in March, 1919, six months after operation. A second, George L., aged seventy-four years, operated upon on February 11, 1920, was still alive and well over two years after the operation. Possibly over-cautionsness was exercised in this case. The remaining patient, J.G.H., aged sixty-seven years, had the cystostomy done in November, 1919, and died eleven days later.

Thus, one hundred and forty-six out of one hundred and fifty-four patients (excluding the frankly malignant) were subjected to prostatectomy, an operability rate of slightly less than 95%.

Analysis of Post-Prostatectomy Deaths.

As stated above, five patients died in hospital after prostatectomy. Of these, E., aged fifty-six years, died on March 21, 1918, five days after a two-stage prostatectomy. The death was sudden, when the patient was apparently well; it was ascribed to embolism. J.S., aged seventy-eight years, died on April 8, 1921, fourteen days after a simple and shockless one-stage operation. He progressed well for seven days, then gradually sank and died from exhaustion. W.P.W., aged seventy-four years, died on August 31, 1918, eighteen days after a two-stage prostatectomy. All went well for ten days, when circulatory failure gradually appeared. P.B., aged seventy-two years, was subjected to a two-stage operation and died on December 22, 1918. He had an enormous growth, chiefly sub-trigonal; clean enucleation was effected and there was no shock and little hæmorrhage during the operation. Six hours later severe reactionary hæmorrhage occurred, for which the prostatic cavity was packed, but death took place twelve hours later. T.M., aged sixty-four years, died in March, 1920, thirty-one days after a one-stage operation performed after nine days' catheter preparation. From the twelfth day onwards massive phosphatic encrustations and repeated secondary hæmorrhages occurred; all efforts failed to effect more than temporary improvement. Death resulted from exhaustion and urosepsis.

Analysis of One Hundred and Forty-Six Prostatectomies.

The average age of the one hundred and forty-six patients who were submitted to prostatectomy was sixty-nine, the oldest being eighty-six, the youngest forty-nine. There were nine patients over eighty in the series.

Thirty-one of the patients when first seen had complete retention of urine, for which catheterization had been employed for periods of time varying from two days to eight months.

Seventy-one others had had catheters passed for one reason or another at varying periods of their disease. Forty-four had never been catheterized.

Residual urine to an extent greater than one hundred and twenty cubic centimetres (four ounces)

was present in one hundred and twenty-one of the patients.

Four, who had had a cystostomy performed before coming under observation, are included in this category, as the operation had been performed for complete retention.

All except thirty-one of the patients had pus in the urine in appreciable quantities at the time of the first examination.

Hæmaturia had been present at some period of the disease in thirty-nine of the patients and was severe at the time of observation in eight.

There were two cases of associated papilloma; these were treated by the high frequency current through the cystoscope before they were submitted to prostatectomy.

Thirty-one patients had vesical calculi, the calculi being multiple in twenty-seven.

No vesical diverticula extensive enough to demand removal were found in this series of cases.

Malignancy, in addition to hypertrophy, was suspected after rectal examination in eight patients of the series, who were given the benefit of the doubt. Four of the growths later proved microscopically malignant, but the patients were not apparently adversely affected thereby.

Seven other prostates in which malignant disease was not suspected prior to operation, later proved to be the site of malignant tumours, but the patients made satisfactory progress.

Only those prostates were regularly submitted to microscopic examination in which difficulty in enucleation or naked-eye appearance was suggestive of malignant disease. Patients with frankly malignant prostates were not submitted to prostatectomy.

Amongst a variety of incidental lesions, the following are specially worthy of note: Two of the patients had diabetes, two were hemiplegics, one was a tabetic, one an epileptic (who had an alarming epileptiform seizure while under ether), one was an acute alcoholic and developed *delirium tremens* on the night of the operation, one had an aortic aneurysm and one aortic regurgitation.

Cystoscopy.

This was, as a rule, only carried out where there were symptoms of prostatism and no prostatic enlargement was palpable on rectal examination, or when hæmaturia suggested the presence of some associated bladder growth.

Only twenty-seven of the one hundred and forty-six patients were so examined.

Preliminary Treatment.

This was carried out by retention catheter, either alone or combined with intermittent catheterization, in one hundred and five of the patients.

Preliminary cystotomy was performed in thirty, including four who were admitted to hospital in this condition.

Eleven were operated upon without catheter preparation or preliminary cystotomy. Nine of these had no appreciable amount of residual urine, a normal indigo-carmin excretion and all were apparently "first-class risks." These were submitted to

prostatectomy after resting for a day or two in hospital. The remaining two had immediate prostatectomy. Both were very fat men. The bladder in each case was distended to the umbilicus with urine and blood clot and no relief could be afforded *per urethram*. One of these was the patient referred to above suffering from acute alcoholism, who developed *delirium tremens* on the night of the operation. Though both eventually made a satisfactory recovery this was probably due rather to good fortune than good management. It is a method of treatment which should be reserved for very exceptional cases.

Preliminary treatment, once instituted, was carried out until the decompression stage had passed and preferably until a satisfactory indigo-carmin test was obtained, though this latter was sometimes omitted in the earlier cases.

The time varied from eight to twenty-one days in the patients in this series who were so prepared.

In very bad cases where the residual urine was in large amount and the bladder formed a palpable tumour, not more than one hundred and twenty to one hundred and eighty cubic centimetres (four to six ounces) per hour at a time were as a general rule allowed to run off through the catheter, the bladder being generally completely emptied within twenty-four hours.

A rather ingenious device for use in such cases was described by Van Zwalenburg in *The Journal of the American Medical Association* (1920, Volume LXXV., pages 1711 and 1712), the essence of which is the manometric adjustment of a douche-can at the foot of the bed to receive the urine at such a level that the urine just trickles into it on deep inspiration, the level of the can being gradually lowered. The device has a scientific flavour and is quite satisfactory in selected cases. The main objections to it are, firstly, that complete confinement to bed is necessary and, secondly, that it requires from two to ten days to empty the bladder and during this time no antiseptic bladder irrigations can be employed. Each of these is in many cases a serious drawback.

The method first described does not entail confinement to bed, many patients being out of bed during the entire period of preliminary treatment. It has been employed in the majority of the cases of the series and has proved safe and simple and very generally satisfactory.

Occasionally intermittent catheterization proved sufficient and tolerable in cases where the retained catheter was not well borne. When neither was tolerated, preliminary cystotomy was performed.

My present practice, so far as the preliminary treatment is concerned, is to employ the retained catheter where possible, intermittent catheterization or, failing this, cystotomy only when necessary and this mainly because the last named entails confinement to bed during the entire period of preparation.

The above, of course, does not apply to the few "first-class risks" in whom operation may be proceeded with without delay.

Operative Technique.

Suprapubic prostatectomy was carried out in all the cases of this series, Squier's method of enucleation, which leaves the *verumontanum* and ejaculatory ducts intact, being the procedure of choice.

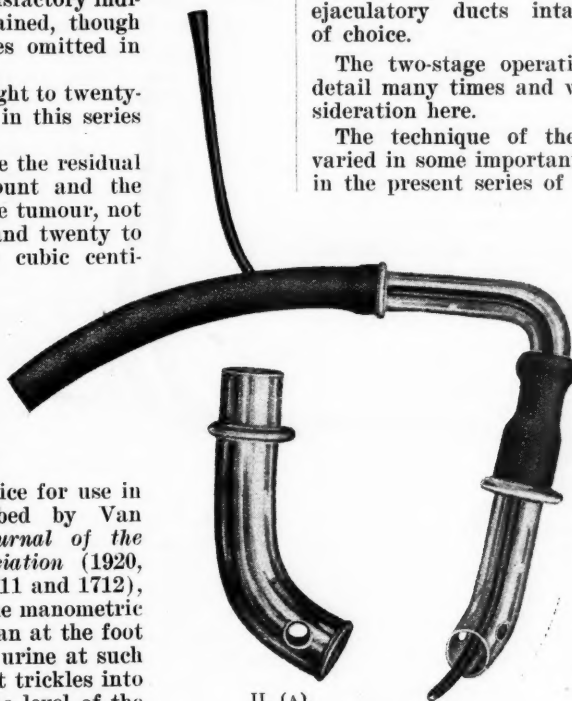
The two-stage operation has been described in detail many times and will receive no further consideration here.

The technique of the one-stage operation has varied in some important details from time to time in the present series of cases. The operation now

performed may be briefly summarized: A completely emptied bladder; a 3.75 to 7.5 centimetre (one and a half to three inch) transverse suprapubic incision through the skin and fat; a five centimetre (two inch) vertical slit through the aponeurosis; careful gauze segregation of the bladder; the incision in the bladder carried to the highest point of the fundus after aspiration of any remnant of lotion; bimanual enucleation of the prostate and control of hæmorrhage; bladder drainage by a special glass tube (see Figure II.); one figure-of-eight catgut suture below the tube for appo-

sition and inversion of the edges of the bladder; the free ends of this are passed through the rectus muscle on each side and tied, thus obliterating the pre-vesical space, which now is not separately drained; one catgut mattress suture is used in the aponeurosis above the drainage tube; one fat suture and one or two "Michel" clips are applied on each side of the tube.

The operation as described above should rarely take longer than twenty or twenty-five minutes; often a much shorter time suffices, though gentleness and adequate control of hæmorrhage are even more important than speed in making this a shockless operation. Completeness, not haste, has been the watchword.



II. (A).

FIGURE II.

Special Glass Prostatectomy Drainage Tube Fitted for Constant Irrigation. Not to be used after Prostatectomy. II. (A) shows Tube Half the Actual Size.

For the immediate operative control of hæmorrhage bimanual compression sufficed in all but one of the patients in the present series. In this instance the hæmorrhage was readily controlled by packing gauze into the prostatic cavity around a catheter passed *per urethram*, both being removed thirty-six hours later.

The whole of the bladder interior can, when desired, be thoroughly inspected by means of a specially constructed, electrically-lighted retractor (see Figure III.) and any necessary procedure incidental to the prostatectomy can readily be accomplished through the restricted incision described.

The very long incisions and wide retraction advocated and practised by some surgeons (*e.g.*, Thompson Walker, *British Journal of Surgery*, April, 1920) with the object of bringing the whole operative field into open view are certainly spectacular. Personally, I have not found them necessary and think they will be short-lived.

It is very important, both for the immediate control of hæmorrhage and to insure satisfactory after-results that a complete clearance be made of the prostatic cavity and that the cavity should be, so far as possible, collapsed, that is, that the roof or region of the vesical sphincter should not be rigid or taut, but should be enabled to fall in on the prostatic cavity from above (see Figure IV.). Thus, where a small, tight sphincter remained after removal of the prostate, it was the rule to divide this deeply backwards in the mid-line. Otherwise, a spindle-shaped cavity is liable to remain, communicating by a narrow opening with the bladder above. This may be a cause of future obstruction or it may even become completely closed. I have actually seen this latter in two patients referred to me with permanent post-operative suprapubic fistulæ. Or a stone may form in the cavity and be caught below the "collar." This I have seen on two occasions, one of which was an early case of my own present series and is described in detail below (see Figures IV., V. and VI.).

This "collar" or ledge formation is especially liable to occur after operation in cases of early bilobed enlargement of the prostate where there is no intravesical projection.

When, in addition, a sub-cervical or median glandular bar is present, unless great care is exercised to remove all the glandular material around the sphincter, the glandular bar is liable to be left adherent to the sphincter and lead to further trouble, necessitating its removal.

When the bar is larger and projects up into the bladder, it generally separates easily with the main growth and so is unlikely to be missed.

In case of doubt, specially when on bimanual palpation the posterior segment of the sphincter

region feels thicker than normal, I now make it a rule to incise the trigone deeply in the mid-line or to cut a broad piece out with a punch or scissors. Failure to observe this rule necessitated a secondary punch operation for persistent obstruction six weeks after operation in one of my patients—not in the present series.

Quite a number of such cases of post-operative obstruction have been referred to me for treatment after prostatectomy elsewhere (*vide infra*).

During the currency of the present series of cases, there were twenty-five patients re-operated in my hands who had previously been operated elsewhere for removal of the prostate. These, for obvious reasons, are not included in the present series. The list is a rather formidable one and could have been materially curtailed if the precautionary measures detailed above had been observed.

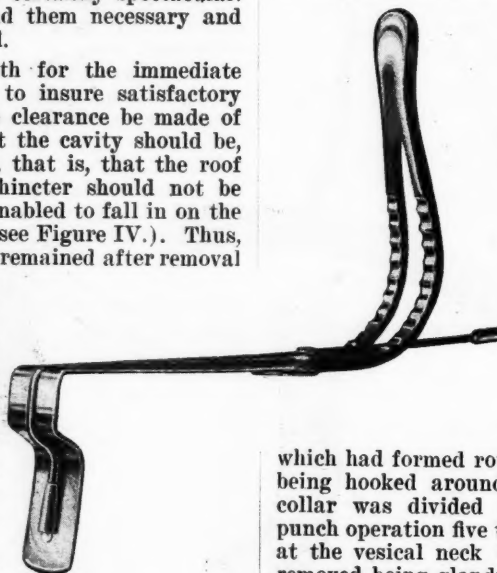


FIGURE III.
Specially Constructed,
Electrically - Lighted
Retractor.

The re-operations performed or the indications for operation were briefly as follows: Incomplete removal of the prostate by the perineal method, five cases; by the suprapubic route, two cases; complete closure of the neck of the bladder, with resulting permanent suprapubic fistula, two cases (multiple suprapubic fistulæ being present in one of these); urethro-rectal fistula, following perineal prostatectomy, one case. Litholapaxy was required on seven occasions, suprapubic lithotomy once (the stone

which had formed round a broken piece of catheter, being hooked around a tight trigonal collar; the collar was divided at the same time), prostatic punch operation five times for persistent obstruction at the vesical neck (the composition of the tissue removed being glandular in three cases and a combination of fibrous and muscular tissue in two), contracture of the bladder (or pan-mural cystitis), two cases.

Satisfactory results followed re-operation in all except the two last named. In one of these, several previous operations had been performed on the prostate and the bladder had been drained both through the perineum and suprapubically. Cystoscopic examination revealed a contracted, generally inflamed bladder, with a cribriform ledge in the sphincter region. This was divided with Young's punch, but without any benefit. The other patient had had a suprapubic operation ten months previously with complete relief of obstruction, but a contracted, irritable bladder had resulted. Some small irregularities were seen around the sphincter region through the cystoscope and were trimmed off through a suprapubic incision without permanent benefit. Both the above cases may fairly be placed in the category of pan-mural cystitis described below and are probably now incurable by any method of treatment.

Anæsthesia.

Ether administered by the intrapharyngeal method has been the anæsthetic of choice, deep anæsthesia being employed during the enucleation. In uncomplicated cases it may be discontinued thereafter or, if need be, carried on in a much lighter degree.

After-Treatment.

Two hundred and eighty-four cubic centimetres (a half pint) of salt solution are given *per rectum* immediately the patient returns to bed and none thereafter and an "Alexander" bandage fixed in position to suspend the scrotum. An injection of 0.01 gramme (one-sixth of a grain) of morphine is given hypodermically as the patient is regaining consciousness and is repeated as often as is necessary for reasonable comfort during the next twenty-four hours or longer if necessary.

The patient is propped up in bed as soon as complete consciousness is restored.

No aperient or enema of any kind, except the post-operative saline injection mentioned above, is administered until the morning of the fourth day after operation. At this time thirty cubic centimetres (one ounce) of castor oil are given by mouth and one hundred and eighty cubic centimetres (six ounces) of warm olive oil are run slowly into the rectum by means of a soft rubber catheter and funnel.

The abdominal dressings are changed at the end of twenty-four hours, occasionally earlier. After this they rarely have to be touched until the "Michel" clips are removed on the morning of the fifth day, when the small wound on either side of the tube will be found well healed.

The bladder drainage tube is removed, as a rule, about the sixth day, the dressings, except on rare occasions, remaining completely dry during this period.

The majority of patients began to pass urine naturally from the eighth to the tenth day. In only one patient in the series was this delayed beyond the fifteenth day. Complete closure of the fistula

took place, as a rule, from three to seven days later. Of the one hundred and forty-one patients who recovered from operation, sixty-nine began to pass urine naturally on or before the eighth day, forty-two on or before the tenth day, eighteen on or before the twelfth day, seven on or before the fourteenth day, four on or before the fifteenth day and one on the nineteenth day.

Though complete records are not available in every case on this point, I believe I am right in

stating that in only two patients in the series who recovered, was complete closure of the fistula delayed beyond the twenty-first day after removal of the prostate. There was no case of persistent fistula.

Patients are out of bed not earlier than the tenth day.

"Hexamine" (0.6 gramme = ten grains) and sodium benzoate (0.9 gramme = fifteen grains) are administered three times a day as soon as bleeding has ceased. I no longer use acid sodium phosphate, as I have found, contrary to what is generally stated, that this drug renders the urine alkaline in these cases.

No bladder irrigation of any kind is used, at any rate during the first fortnight. After this, if the urine is very dirty, a catheter is passed daily for a few days, the bladder washed clean and one hundred and twenty cubic centimetres (four ounces) of a one in three thousand solution of silver nitrate are deposited in the bladder.

The method of through-and-through irrigation by means of a nozzle introduced into the *glans penis* I rarely practise, chiefly because the strong solu-

tions of silver nitrate, which I employ on the few occasions when irrigation is deemed necessary, are not tolerated by the urethral mucosa.

Complications.**Post-Operative Shock.**

This should occur rarely, if ever, in a properly prepared and conducted operation. I have no complete record of observations on this point, but from my own notes and recollections and from informa-

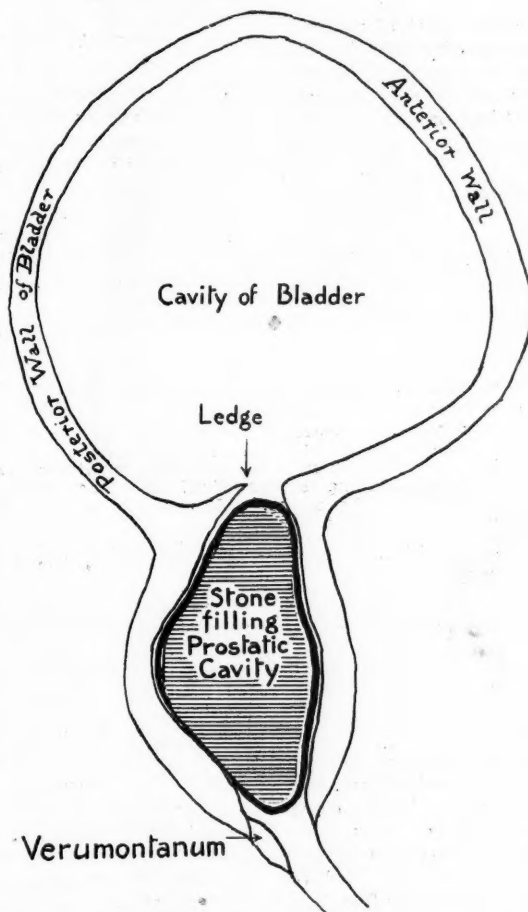


FIGURE IV.
Diagram of Bladder Showing Ledge Formation Described in Text and Stone Formation Filling Resulting Cavity (semi-diagrammatic).

tion supplied by those who have given anæsthetics for many of these patients for me, it is safe to say that the immediate post-operative pulse rate was generally in the neighbourhood of seventy to eighty and but very rarely exceeded ninety.

Epididymitis.

Epididymitis occurred at some time during their stay in hospital in fifteen patients, or slightly over 10%. It occurred in two before operation, while undergoing catheter preparation, and in thirteen after operation, nine of whom had a one-stage and four a two-stage operation.

It would appear that the early onset of natural urination acts as an important prophylactic in this regard. Thus, in thirteen post-operative cases in the series, the onset of micturition was delayed beyond the eleventh day in all but one.

Scrotal suspension also plays an important part in warding off this annoying complication. The "Alexander" bandage is a convenient and comfortable means of securing this.

A few of the patients developed epididymitis within three months after discharge from hospital, but I have no records showing the exact incidence of this.

Secondary Hæmorrhage.

Secondary hæmorrhage, severe enough to demand re-opening the bladder and packing, occurred twice, on the seventh and twelfth days respectively. Both were clean cases; the wound of the latter patient had healed and he was passing all urine *per urethram*. Both ultimately made a good recovery.

After-Results.

The painful, contracted, irritable bladder alluded to above, which is encountered occasionally after prostatectomy and was better known in the early days of the operation, is, apart from incomplete operation, due mainly, I believe, to massive inflammatory involvement of the tissues of the bladder wall—a true pan-mural cystitis—resulting from the close proximity of a long-continued septic urinary fistula and prostatic cavity, though it was customary in bygone days to ascribe this condition to the use of strong antiseptics. It is a miserable condition and practically incurable. The remedy is obvious. It has fallen to my lot to see several such cases during the past decade, fortunately not the result of my own handiwork.

The early and clean closure of the fistula obtained in this series of cases and the total absence of sloughing along its track, due largely to the use of the glass drainage tube, are in marked contrast to what usually obtains where rubber is used for bladder drainage; they must have contributed in no

small measure to the comparative exclusion of unpleasant sequelæ.

The short time afforded me for the preparation of this paper has sufficed to get in touch with only ninety-six of the one hundred and forty-six patients operated upon. The attached questionnaire was sent to one hundred and twenty patients, or to their medical attendants when the patients had been referred to me. I should like to take this opportunity to thank the latter for the time and trouble they have spent in hunting up their respective patients. Without their assistance, this portion of the paper could not have been written.

Analysis of Replies to Questionnaire.

Urination.

Of the ninety-six persons replying, all except two stated that there was no difficulty in passing urine. One of these is the patient referred to below, who was suffering from stenosis of the external urethral orifice following a later operation for cancer of the penis. The other patient has a stricture of the bulbous part of the urethra. This stricture was present at the time of the prostatectomy and was then dilated; it has been dilated several times since.

He is now undergoing dilatation, which, as far as I can tell at present, should suffice for complete relief.

Painful Micturition.

Concerning pain on passing urine, ninety patients stated that there was no pain and six complained of pain or discomfort in some degree. The following

are the complaints as formulated by the patients: (i.) "Burns if I hold it too long!" (ii.) "Slight tingling sensation at finish of act, which is daily improving." (iii.) "Painful at times!" (iv.) "Very slight pain!" (v.) "A slight pain at the finish at times." (vi.) "Sometimes pain, sometimes good!"

Patients (i.) to (v.) answered in the affirmative Question 8 of the questionnaire, *i.e.*, they considered themselves cured of their prostatic trouble and were practically normal in all other respects.

The following are some details of Patient (vi.) and of two patients of the series to whom questionnaires were not sent for reasons which will be apparent later: Patient (vi.) consulted me in June, 1917, six weeks after a perineal lithotomy performed elsewhere without relief of his obstruction. A large trilobed prostate was removed through a suprapubic incision. He remained quite well for two years, when he returned with cancer of the *glans penis*, with enlarged inguinal glands, for which a radical extirpation was performed. He left hospital before his incisions were completely healed and later developed a cicatricial contraction of the orifice of the urethra. He declined any further operative relief, preferring to keep himself

QUESTIONNAIRE.

1. Is there any difficulty in passing urine?
2. If there any pain on passing urine?
3. Have you good control of the urine?
4. How long can you hold urine during the day?
5. Do you get up between ten o'clock at night and six o'clock in the morning to pass urine? If so, how often?
6. Has the operation made any difference to your sexual powers? If so, in what way?
7. Is your health better since the operation?
8. Do you consider yourself cured of prostate trouble? If not, in what way?

dilated with a small wooden peg which he had fashioned for himself. I have no further knowledge of his present condition apart from the questionnaire, which he concludes by stating: "I am not troubled with prostate!"

The other two patients mentioned above had the original operation at my hands and were re-operated by me for recurrence of symptoms. One of these returned for treatment in a miserable condition two years after the prostatectomy with a large stone tightly wedged in the prostatic cavity, of which it formed a perfect cast (see Figures IV., V. and VI.). It was removed with considerable difficulty in May of this year by a suprapubic operation, a litholapaxy proving impracticable. He has since made a very good recovery.

The remaining re-operated patient had a very dense, small fibro-adenomatous prostate with numerous calculi removed in June, 1917. He returned with a recurrence of obstructive symptoms two years later, when a large glandular bar was removed by Young's prostatic punch through the urethra with complete relief. He died eighteen months later from "asthma."

Control of Urine.

In regard to this, all except two replied in the affirmative. One patient wrote: "Yes, generally, unless very cold day!" The other: "Have to make it quick when it comes!" Fourteen patients stated that, although control was now good, there had been some dribbling at the end of micturition which gradually ceased, in one after persisting for seven months.

Nocturnal Frequency of Micturition.

This averaged 1.6 for the ninety-six replies received. Thus, thirty-five retained urine all night, thirty rose once, sixteen twice, eleven thrice and four four times. It is very different from the previously existing obstructive type of frequency and generally improves progressively from the time of the closure of the fistula.

Oftentimes a persistence of the nocturia is due to the presence of a chronic nephritis, a reversal of the normal rhythm of renal secretion being a not uncommon phenomenon in this disease.

Frequency of Micturition During the Day.

In health this varies within wide limits, according to habit and opportunity. In the replies received

one can only form a very rough idea of the general average, which is apparently but little removed from the normal.

Sexual Ability.

When loss or diminution of sexual power has occurred before operation, as so frequently happens in these patients, the results (as judged by the replies in the questionnaire) do not warrant the surgeon in offering any great hope of restoration. Two patients state that they were adversely affected; one was improved; the rest apparently remained *in statu quo*.

General Results.

These may best be judged by a joint consideration of the operability rate, the operative mortality, the late mortality and the freedom from recurrence of symptoms.

The operability rate, as stated at the beginning of the paper, was slightly less than 95%.

The immediate post-operative mortality among the one hundred and forty-six patients submitted to prostatectomy was five, or slightly less than 3.5%.

Concerning the late mortality, so far as is at present known, all except five of the patients, who recovered from the operation, are still alive.

Of these five, D.M., aged sixty-three years, who was operated on July 11, 1921, died from a ruptured aortic aneurysm six months after operation, having remained quite well so far as his urinary tract was concerned (report from his medical attendant).

J.S., aged sixty-five years, who was operated on July 17, 1921, died from cerebral hæmorrhage three months after operation (report from his medical attendant).

T.M.S., aged sixty-three years, who was operated on March 28, 1921, died from "asthma" eleven months after operation (information supplied by his wife, who stated that he had had no further urinary trouble).

H.E.J., aged sixty-four years, who was operated on December 15, 1919, died from "asthma" eighteen months after re-operation (case quoted in detail above).

H.L., aged sixty-six years, who was operated on December 24, 1919, died insane about fourteen months after operation without recurrence of urinary symptoms (verbal report from medical attendant who has since died).

So far as recurrence of symptoms is concerned, the detailed analysis of the replies to the questionnaire speaks for itself. There were, however, two

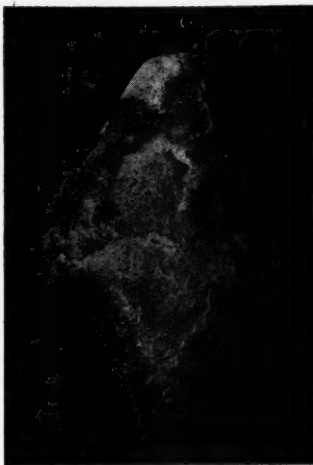


FIGURE V.
Anterior View of Stone Shown Diagrammatically in Figure IV. (natural size).



FIGURE VI.
Lateral View of Above.

patients in the series who presented themselves with a hernia in the scar. These were early in the series and the operation for removal of the prostate had been performed before the present restricted incision was employed. Of these, one has had a successful repair, the other, who is eighty-two years of age, is kept reasonably comfortable by means of an abdominal belt.

With the exceptions mentioned, all the patients who have replied state that their general health has been better since operation and that they consider themselves cured of prostatic trouble.

Conclusions.

1. Careful study of each individual case and adequate preparation are equally as important as meticulous care in operative detail.
2. Study of one's own failures and those encountered of other surgeons forces one to the inevitable conclusion that bad results are almost invariably due to faulty technique. These bad results generally can and should be remedied.
3. In properly conducted cases there should rarely, if ever, be serious post-operative shock and never uræmia.
4. The results, both immediate and remote, obtained with the glass bladder drainage tube are, I believe, unobtainable by similar methods of operating when a rubber drainage tube is employed.
5. With the operation described there is a minimum of discomfort from moisture or urinous odour and certainly none of that misery and disgust so characteristic of some methods of prostatectomy.
6. The modern operation of prostatectomy, in properly selected cases and in competent hands, should entail little greater risk to life than that of any other average series of abdominal sections.

PROSTATECTOMY.

By GORDON CRAIG, M.B., CH.M.,

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To use a time-worn expression, like the poor, prostates "are always with us" and no question in the whole range of medicine is more difficult to settle than the best way to deal with them.

Sometimes the doctor, but not the patient, is convinced that operative interference should take place; sometimes it is the patient, not the doctor; fortunately, however, it sometimes happens that both doctor and patient are of one mind.

Manifestations of Prostatic Hypertrophy.

The patient who seeks relief for piles or constipation is told by his doctor after a rectal examination that it is his prostate that is the real cause of his complaint, is a difficult man to convince, especially if he has few or no subjective symptoms.

Mere size is not to be taken as a guide for opera-

tion; a prostate of maximum size may never have produced an attack of retention. Such a patient may have wandered far on the downward path of prostatism before he realizes that all is not well with him.

The occasional nocturnal call to empty the bladder is such a simple and easy start and the rest of the downhill journey may be so well graded that the terminus of chronic uræmia may be reached before the patient realizes where he is. Lucky is he who bumps up against the mile-stone of acute retention to warn him of his danger. He has little difficulty in persuading himself or his doctor that something must be done.

Lastly, there is the man who has an increasing difficulty and yet may be examined by a doctor and be told there is nothing wrong with him. A full-sized metal bougie may pass with ease into the bladder and the examining finger in the rectum may find nothing wrong, yet a median lobe or bar may be the underlying cause and this can be revealed only by cysto-urethroscopic investigation. In this type a minimum of enlargement may produce a maximum of symptoms. Also, the possibility of early organic disease of the spinal cord has to be remembered when the clinical signs of enlargement are absent.

The usual descriptive terms of enlargement of the hypertrophied prostate are not on a satisfactory basis. The method adopted at one American clinic is on a numerical basis and is worthy of a wider adoption. Instead of using loose terms, such as "greatly," "moderately" and the like, the classification is based on a maximum enlargement, called "four degrees." One degree of enlargement would mean a definite but slight enlargement, with the other two degrees in between these extremes. A definite scale of classification makes the clinician more exact and more careful in his physical examination. In the absence of clinical signs of enlargement a closer cooperation between the general practitioner and the one who works in this special branch of surgery, is necessary before we can hope to improve the records of prostatic treatment.

Much water has ebbed and flowed in the vesical tides since the late Sir Peter Freyer championed the cause of prostatectomy. His contributions were epoch-making and placed the operation amongst the sound surgical procedures of to-day. At Edinburgh last year at the Congress of British Surgeons Sir Berkeley Moynihan told the story of the first prostatectomy ever performed at Leeds, in England. McGill was the surgeon and Moynihan the resident house surgeon who assisted at the operation—somewhere in the 'eighties of last century. It was an operation deliberately planned and deliberately performed. The operation and result were published, but did not attract attention until the operation was re-discovered by Freyer.

The Dilution and Concentration Test.

As an indication for operation we rely mainly on an attack of retention with a palpable enlargement of the gland, but chiefly upon the amount of residual urine. When these signs are combined with sub-

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 25, 1922.

jective symptoms on the part of the patient, decision is always easy; to advise operation in pure adenomatous enlargement without many symptoms will always be difficult until we get some functional test of the kidneys that can be performed by the general practitioner without the aid of complex apparatus. At present a full list of the urinary functional tests would fill many pages and a description of them perhaps a fair-sized volume. Yet amongst them few appeal to the busy practitioner. At one of the most important urological clinics at Vienna they are using a very simple renal function test which requires no other apparatus than that used by every general practitioner. It was published some twenty years ago by one of Vienna's foremost physicians and was called by the descriptive term "the dilution and concentration test." It had fallen into disuse, but during the war period, by reason of its small cost and simplicity, had been taken up again by the urologist. The test is made in the following way: Between 7.30 a.m. and 8 a.m. the patient is given one and a half litres of plain water or water flavoured with weak tea or coffee and until the test is over no more fluid is given. At 8 a.m. the bladder is emptied by catheter. In most cases the catheter is the indwelling one which has been used in the process of "decompressing" the kidneys preparatory to radical operation. Between 8 and 9, 9 and 10, 10 and 11 a.m. the urine is collected and measured and its specific gravity tested. This is the period of low specific gravity or dilution. Between 11 a.m. and 5 p.m. the urine is collected and measured, but not tested for its specific gravity. This is the transition period from dilution to concentration. The urine is finally collected between 5 and 6, 6 and 7, 7 and 8 p.m. and measured and its specific gravity taken. This is the period of high specific gravity or concentration. A normal, healthy man will at the period of greatest dilution, between 9 and 10 a.m., pass the largest quantity of urine which will show a specific gravity of 1,002 to 1,005. At the period of highest concentration, between 7 and 8 p.m., the quantity passed will be smallest and the specific gravity will rise to something between 1,025 and 1,030. The amount of urine passed in the twelve hours will approximate to the quantity of water given. The nearer a prostatic patient comes to this normal standard, the better "risk" will he be for operation. During the past six months the test has been tried in over one hundred patients with urological affections. Judged from this small series it can be recommended as a good guide to renal function. It can be relied upon as much as any of the other tests of renal function. This qualification is mentioned purposely, for no renal test is of value unless it coincides with a fitness for operation determined by an ordinary clinical examination. Unless the patient has a clean, moist tongue and a good appetite and sleeps well, preparatory treatment should be continued.

This test should be more widely used in general practice in both medical and surgical cases.

In Bright's disease it should give practical results and in prostatic cases especially it may prove to

be the means of determining at what stage the patient has arrived on the downward path towards renal insufficiency. From the series of tests already mentioned it may be said that, other things being equal, a patient who has a difference in dilution and concentration of fifteen points on the urinometer, say 1,002 to 1,017, may safely be subjected to operation. Below that amount the danger increases as the difference diminishes. I have operated on patients with a difference as low as ten, but the recovery was not without some manifestation of uræmia or anxiety on my part. One patient, who had a difference of eleven points, died of uræmia. Everyone with a difference of fifteen or over has recovered.

Preliminary Drainage.

The danger of the sudden emptying of an over-distended bladder in prostatic enlargement has been recognized for many years. To overcome this difficulty a method has been recently devised by an American surgeon, van Zwahlenberg, whereby it is possible gradually to "decompress" the kidneys.⁽¹⁾ The Jacques catheter is passed and clamped as soon as the urine starts to flow; a suitable connexion with a long length of rubber tube is made and the clamp released. This rubber tube is led to a douche can or suitable vessel suspended about twenty-five centimetres above the level of the bladder. This column of fluid, against which the urine has to be excreted from the ureters, reproduces the backward pressure on the kidneys of the enlarged prostate. Day by day the level is lowered, until about eight or ten days after commencing the preparatory treatment the vessel is lowered to floor level. This method of gradual decompression is in use in the chief American urological clinics. It is a simple but important addition to the technique of preparation of the patient for operation.

Although ten days to a fortnight is the average time for preliminary drainage, yet if a patient shows a poor renal function at the end of two weeks, the time may be extended to several weeks; each case must be dealt with on its own merits. Since this method has been adopted, it has been possible to offer a radical operation where previously it would have been refused. If the kidney function should remain persistently below the level of safety, the patient may be permanently relieved by means of a self-retaining De Pezzer catheter inserted into the bladder through a suprapubic stab wound made under local anaesthesia by means of a large trochar.

A judge in the Law Courts of England has been able to continue his arduous duties on the bench for over a year by means of this relief. The kidneys may after some months of this type of drainage become sufficiently restored in their function to withstand a radical operation on the prostate.

Two-Stage Operation.

There is one point upon which all urinary surgeons are agreed and that is that the operation of prostatectomy should be done in two stages in the great majority of cases. There is a small percentage of patients who seek surgical relief at a sufficiently early stage before any inroad has been made on their renal function and who can stand a radical opera-

tion in one stage. These are the patients particularly suited for the "open operation" in one stage. Some misunderstanding exists about the terms "one-stage operation" and "two-stage operation." The term "one-stage operation" should be confined to the operation that is done without any preliminary drainage by catheter through the urethra or by tube through a suprapubic wound.

When the bladder is drained after operation by either of these routes with a view of "decompressing" the kidneys, the operation should be called "the two-stage operation." The main purpose of the first stage is to relieve the backward pressure upon the kidneys until they have become accustomed to the new order of things. Whether this relief of pressure is through the natural channel of the urethra or the artificial channel of the suprapubic incision is a minor consideration.

Lately a new term—"open operation"—has been given to that operation in which a free suprapubic incision is made through the clean, normal tissues of the abdominal wall and bladder. A wide exposure of the prostate can be made through this incision by suitable retractors and appropriate illumination. A deliberate visual dissection or enucleation can be made and bleeding dealt with as in the radical removal of tonsils. When preliminary treatment is indicated in the open operation, it should be carried out by means of the indwelling catheter. When the preliminary or first stage has been performed through a suprapubic cystotomy and a fortnight or more has elapsed before the second stage is completed, an "open," visual exposure of the prostate is fraught with considerable danger to the patient. The walls of the suprapubic sinus are friable and infiltrated with inflammatory products and if a full exposure of the prostate is attempted, it is quite easy to open into the peritoneal cavity and infect it, or go beyond the area of granulation tissue and infect the pelvic areolar tissue. When a patient cannot stand the indwelling catheter, estimated about 7% to 10%, it is safer to drain the bladder by suprapubic cystotomy and to complete the second stage by the classical Freyer method of bimanual digital enucleation without the help of sight.

To sum up, it may be said that the open operation is suitable for all "good risks"; the Freyer operation for doubtful or poor ones.

The Perineal Operation.

The Johns Hopkins school of urologists, headed by Young and Geraghty in the east and Hinman in the west of the United States, has demonstrated that the perineal operation is an eminently safe procedure. No records by surgeons performing the suprapubic operation can show a lower operative mortality. Hinman⁽²⁾ has modified the Young perineal operation by a procedure which saves the ejaculatory ducts from injury and in consequence preserves the ability of the patient to emit semen. A diamond-shaped area of the floor of the prostatic urethra containing the *veru montanum* is isolated before the enucleation of the prostate is commenced. Reference to his original paper is necessary to follow the details of the operation. It is an "open" or visual operation performed through the perineum. The

enucleation is exactly of the same type as is performed in the "open" suprapubic operation. Although the suprapubic route is chosen by most urologists, yet the perineal route has the support of a powerful minority, whose opinions command the greatest respect. It is claimed that a careful review of cases shows that there are fewer disturbances of the functional control of the bladder in the suprapubic operation, but it is not admitted by those who perform the perineal operation. In the Freyer suprapubic operation there is sometimes a complication coming on about twelve months or sooner after the operation, due to the cicatricial contraction of the tissues surrounding the site of the prostatectomy, but if the enucleation is performed suprapubically by the open or visual method, the vesical neck and posterior opening of the urethra can be seen and loose tags of redundant mucous membrane in the area of the operation can be removed by scissors. If a shelf of mucous membrane is left after the enucleation, it can be divided.

This detailed attention to the prostatic "bed" can be given to a much greater degree of refinement in the open suprapubic than in the perineal route, thereby reducing the post-operative complications. This may eventually prove the deciding factor in making the suprapubic open operation the universal operation in all those cases where the patient has not gone too far down the path to renal insufficiency.

What is really done in prostatectomy is better understood by a reference to the surgical anatomy of the posterior part of the urethra and the changes that it undergoes in adenomatous enlargement of the prostate gland. The posterior urethra is 3.8 centimetres long. It consists of two equal parts, an anterior and a posterior, divided by the opening of the ejaculatory ducts in the *veru montanum*. It is the posterior part only that is involved in the enlargement of the prostate. Normally the posterior part of the prostatic urethra continues the easy curve of the anterior; but in adenomatous enlargement of the gland it undergoes two changes, an angulation just behind the *veru montanum* and a lengthening up to six centimetres or more. In other words, this posterior portion of the prostatic urethra may be longer than the whole length of the normal prostatic urethra. It is this angulation and deformity which leads to such difficulty in passing a catheter. The lengthening can be measured by the cystourethroscope in the following way: The instrument is passed into the bladder and withdrawn until the vesical orifice is in the field of vision. The distance of the eye-piece from the *symphysis pubis* is noted and the instrument is withdrawn still further until the *veru montanum* comes into view. The distance of the eye-piece from the *symphysis pubis* is again noted and the difference between the two is the length of the posterior part of the prostatic urethra and therefore of the enlargement of the gland. Both Young and Hinman have described a method whereby the shape of the vesical orifice can be charted from a series of observations at eight equi-distant points on the circumference of the vesical orifice.⁽³⁾ The information so gained can be likened to the "plan" of the prostate, while that gained from exam-

ining the length of the altered urethra can be likened to the "elevation" of the prostate. The writer has found it a valuable indication for operation in some cases, especially where the enlargement is intravesical and not evident from a rectal examination. It is a simple observation and may have been used by others, but, so far, in the literature available, it has not been described. The instrument used in this test has been the Braasch direct cystoscope, which can be used as a urethroscope also. Any instrument through which the vesical orifice and *veru montanum* can be seen, is suitable.

In prostatectomy the posterior part of the prostatic urethra is removed and not infrequently the *veru montanum* with it. This is followed by cicatricial contraction of the orifices of the torn ejaculatory ducts and an inability on the part of the patient to emit semen. In the "open" suprapubic operation the ejaculatory ducts and *veru montanum* can be preserved, as also in the "open" perineal operation described by Hinman.

After-Treatment.

The after-treatment in these cases varies with different surgeons, but all drain the bladder by some method. Some use a metal tube, some a glass tube, while the great majority still adhere to the rubber tube. The rubber tube has been accused of possessing some inherent poisonous effect on the tissues of the abdominal wall, but closer observation will reveal the fact that the sloughing sometimes occurring around a rubber tube is due to a pressure necrosis associated with the elastic nature of the drain. It can be prevented by care in applying the sutures in the abdominal wall around the tube. The sutures should approximate and not compress the tissues against the tube. If the rubber drain is allowed to be pulled to one side of the wound in the after-treatment, that side will show a slough from pressure necrosis. Our experience in war surgery showed us the dangers of large rubber drainage tubes, owing to their liability to produce pressure necrosis and secondary hæmorrhage. This danger can be avoided in the suprapubic operation if ordinary care is exercised in suturing at the time of operation and ordinary care in nursing during convalescence.

It is of interest to note that one surgeon in London discards all tube drainage of whatever form and relies on a gauze wick, which is the tail or end piece of a strip of gauze packed into the prostatic cavity to control hæmorrhage. After two or three days this packing of gauze is withdrawn from the bladder and nothing else re-inserted. He claims to get better and quicker healing by this method.

The fact that there are so many methods of drainage in the after-treatment shows that so far no one method has demonstrated its supremacy. Mother Nature is broad minded and accepts the spirit of the various methods of after-treatment rather than the letter of their performance and rewards them all by timely healing of the wounds.

Conclusions.

In this sketch of prostatectomy, with its indications for operation and after-treatment, some conclusions may be drawn:

1. In enlargement of the prostate it is often difficult to obtain a clear indication for operation before the function of the kidneys are seriously impaired.

2. A functional test of the kidneys easily performed by the general practitioner would overcome this difficulty.

3. Of the many tests the "dilution and concentration" is one that fulfils this requirement.

4. No renal functional test is to be relied on unless it is confirmed by the results of an ordinary clinical examination.

5. When patients are "good risks," the open suprapubic operation is ideal.

6. The suprapubic operation has not yet completely demonstrated its superiority over the perineal.

7. The length of the posterior part of the prostatic urethra is a valuable sign in certain cases of intravesical enlargement, as an indication for operation.

8. Drainage is the common factor in all after-treatment.

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SOME SURGICAL CASES.¹

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THE patients whose histories are recorded in this paper, with one exception, have been met while I have been attending urgent cases at a general hospital. Although taken together they form a heterogeneous group, the gravity of the condition in all of them may justify their record. In the group are two sets; one consisting of head cases of the type that is a bugbear to casualty surgeons and the other of patients with acute and dangerous abdominal disease. A short history of each case will be given and then, by way of comment, some remarks on the diagnosis and treatment.

In a list of cases such as these the notes have been reduced to a minimum consistent with a mental picture of the patient; if in consequence the history seems meagre and the comments incomplete, I crave your indulgence.

Traumatic Cerebral Hæmorrhage.

A man, aged forty-nine years, while under the influence of alcohol, fell and struck his head. He was placed on a sofa, where he lay for some five or six hours apparently unconscious, but whether from alcohol or injury his wife did not know. He frequently came home intoxicated and would sleep in the same way. At any rate, the next morning he was quite conscious, but vomited several times,

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 25, 1922.

which he had not done after his previous bouts of drinking. He also complained of a headache, which no amount of alcohol—and he had taken much—had ever produced before. For some days he was all right except for the headache and his medical adviser could find no evidence of cerebral injury. Ten days after his fall he became drowsy and vomited several times and the drowsiness deepened into coma. On the fourteenth day after the injury he came into hospital. He was then in profound coma, with stertorous breathing; his pulse rate was sixty and his temperature 39.5° C. (103° F.). Both arms and legs were paralysed. He had double Babinski's reflex; Oppenheim's, Schaefer's and Gordon's reflexes were all present. He had also double ankle clonus and exaggerated knee jerks and ankle jerks. His pupils were both small and regular; they did not react to light. The right was larger than the left. His cerebro-spinal fluid was clear, contained no blood, was not under increased pressure. There was no reaction to the Gengou-Bordet (Wassermann) test for syphilis. There was no sign of injury to his skull, no wound, hematoma or oedematous patch of scalp, no blood from his ears or nose, nor did his vomit contain any.

The next case is almost a *facsimile* of this:

The patient was a man, forty-seven years old. While driving home in a sulky, after having a few drinks, he had an accident, the details of which are obscure. He was found lying unconscious in a paddock with the broken sulky some distance off. He regained consciousness, walked home and was quite sensible, but could not remember the details of the accident. The next day he seemed all right, but had a headache. He had vomited on the night of his injury. Two days later his medical adviser saw him and noted that his speech was thick. He could understand what was said and what he wanted to say, but had difficulty in forming words. Then he had a fit and, though the muscles of his body and all his limbs twitched, he did not lose consciousness. A second, similar fit occurred and he was taken to hospital, where for some days he did well and nothing of importance was noted in his condition during this time. On the fourteenth day after his accident he became drowsy and passed into a state of coma.

When seen he had a temperature of 38.9° C. (102° F.); his pulse rate was sixty. There was paralysis of both arms and legs. The left arm was held rigid across his chest, his right flaccid by his side and after being raised it dropped as if lifeless. Both plantar reflexes gave an extensor response; slight double ankle clonus was present. He had retention of urine. His pupils were small, but the left was larger than the right and in both the response to light was very sluggish, if present at all. No external lesion to scalp or skull was found. No lumbar puncture was done and no test was carried out on the blood or cerebro-spinal fluid for syphilis.

The first of these patients was trephined in the right temporal region and a large sub-dural hæmorrhage consisting of clot and liquid blood was evacuated. In the second trephining was done on the left side and much liquid blood under high pressure was removed. The first man was conscious the next day and made a complete recovery. The second for some weeks had loss of memory, was childish in action and speech, but has now recovered completely.

The next is the case of a man about fifty years of age who was knocked down in a street accident:

After admission to hospital, suffering from concussion, he regained consciousness, but some hours later complained of headache, became drowsy and had slowing of his pulse rate down to fifty. He vomited. No paralysis was present. Over the posterior part of his left parietal bone the scalp was oedematous and boggy. There was no external wound, no bleeding from ears or nose. He was trephined in the region of the oedematous scalp, where a fissured fracture was found with about ninety cubic centimetres (three ounces) of extra-dural hæmorrhage from rupture of the posterior division of the middle meningeal. The *dura mater* was not opened. He made a rapid recovery.

The two cases of sub-dural hæmorrhage resemble each other very closely and may be taken as examples of "head cases" which are encountered in casualty rooms; the patients are sent away to die in their homes or in a police cell, thus leading to acid comments on hospital methods by coroners and newspapers. In both the coma appeared late, *i.e.*, fourteen days after the accident, and in both a large quantity of blood was found in the sub-dural space. In neither was there any fracture of the skull. There is no evidence that so large a quantity of blood was present during the fortnight following the accident, nor is it likely that this could occur, but in both the injury was severe enough to produce a primary concussion unconsciousness. What happened is probably this. The blow on the skull produced sufficient indentation of the skull to lead to acute generalized compression of the brain, causing the concussion, from which the patient recovered more or less rapidly, but at the point of impact some cerebral vein or small artery was injured. This allowed blood to leak slowly into the sub-dural space and this was accommodated by gradual compression of the veins, sinuses, capillaries and ventricles in which the pressure is lowest. A time arrives in such cases when the escaped blood is sufficiently large to produce anæmia of a large area of the brain and then coma begins. By this time pressure has been transmitted to the sub-tentorial regions and bulbar symptoms, such as stertorous breathing, high blood pressure and slow pulse, appear. These symptoms, which are the classic syndrome of cerebral compression, are very late in supra-tentorial lesions; in fact, only after the pressure in the hemispherical area is sufficient to affect the *medulla oblongata* through the tentorium. This syndrome bears a similar relationship to supra-tentorial intracranial hæmorrhage that stercoraceous vomiting bears to intestinal obstruction, *i.e.*, it indicates that the end is near. It is quite possible, on the other hand, that the second coma was the result of a hæmorrhage occurring just before it. In a contused area of brain some softening resulted and the rupture of a vessel some time after the accident led to the final condition, the late apoplexy of Bollinger.

Such a hæmorrhage may occur as late as several weeks after the injury. In both patients, when seen in the late stages, it seemed obvious that there was an intracranial hæmorrhage, but could it be decided whether it was intra- or extra-dural? Though in many instances a lucid interval, well defined in these patients, is found in sub-dural hæmorrhages unless they are very rapid and extensive from rupture of a large artery, the interval may be marked by slight mental confusion or Jacksonian epilepsy. In the extra-dural variety the interval is on the whole clearer. But the question of the relation of the blood to the *dura mater* is not as important as the determination of the side on which it has been extravasated. In one case a condition resembling motor aphasia had been noted shortly after the accident and this suggested a left-sided effusion. When the hæmatoma is of large size, both sides of the body show signs of paralysis, but the side which is flaccid is probably the one affected by the pressure of the blood, the other being involved by transmitted pres-

sure. But there is one sign of outstanding importance in locating the hæmorrhage. That is the size of the pupil. In all hæmorrhages, whether extra- or intra-dural, when the pressure affects the mid-brain the nucleus of the third nerve responds. At first, if the mid-brain is in a condition of venous congestion from pressure on its veins, the nucleus will be irritated and produce contraction of the pupil, but as the bleeding increases the congestion gives place to anæmia and paralysis of the nucleus follows with dilated and fixed pupil. So it is a good working rule that the lesion is on the side of the larger pupil. It must be remembered that subdural hæmorrhage is often bilateral from the effects of *contre coup*. Hence trephining should be done on both sides if there is any doubt that a single hæmorrhage is responsible for all the signs present. In the patient with extra-dural hæmorrhage there was the classical syndrome of primary concussion unconsciousness, lucid interval and secondary coma, with the suggestive hæmatoma over the parietal bone. This blood had leaked through the fissured fracture beneath the pericranium and such an outlet for the extra-dural blood leads to a hæmatoma called a "safety-valve hæmatoma."

It can be seen that a grave responsibility is placed upon casualty surgeons to whom such patients are brought. No amount of experience will enable a surgeon to say when he sees a patient in the collapse stage of concussion, whether or no there is any intracranial lesion and, even if complete mental lucidity is regained, no such patient can be regarded as out of danger till some weeks have elapsed.

Arterio-Venous Aneurysm.

The last case of head injury which I wish to record, is that of a girl, about twenty-two years of age, injured in a motor smash in the country:

She was unconscious for a week and vomited freely and the vomit contained blood. After return to consciousness she noticed that her left eye was gradually becoming more prominent than the right and a buzzing noise could be heard by her, arising somewhere at the back of the left eye. As time went on the eye became so prominent that it seemed to be extruded almost from the socket. She could move it only slightly. Diplopia was present, so that she always kept the eye covered. The buzzing noise, which at first was intermittent, was now a continuous hum with exacerbations corresponding to her heart beats.

When examined she presented a distressing appearance. Her left eye was proptosed almost from the cavity of the orbit. It could scarcely be moved owing to the stretched nerves and muscles and it was turned inwards. The veins of her forehead, nose, infra-orbital region and temple were distended and tortuous. The whole orbital region was warmer than the healthy side. Palpation of the eye or forehead showed a continuous bruit with systolic accentuation. Pressure on the eye gradually forced it back into its socket and after pressure on the left common carotid against Chassaignac's carotid tubercle the bruit disappeared and the eye receded.

It was evident that her accident had produced a fracture of her middle cranial fossa and a lesion of her left internal carotid artery where it is in relation to the cavernous sinus, so that an arterio-venous aneurysm had formed. The treatment was ligation of the left internal carotid and left external carotid. The eye rapidly receded, but it was some time before the over-stretched muscles regained their function. After some days the bruit, which at first had disappeared, returned, but was slight and endurable. At present, some two years after the operation, there is no exophthalmos, but, from her parents' account, the left external rectus is probably weak and she notices a faint bruit.

A diagnosis in this case was not difficult, but the treatment is not so satisfactory. In arterio-venous aneurysm the best treatment is separation of the artery and vein at the communication with suture of the artery and suture or ligation of the vein. Failing this, ligation of the artery on each side of the communication is done; but in this case it was possible only to tie the feeding artery at some distance from the lesion. This allowed the anastomosing arteries still to find the false channel and to continue the old condition, but in a less degree. It is better, I think, to ligature both divisions of the common than the common or internal alone. If the common only is ligatured, a path still remains for the blood by way of the external through the bifurcation into the internal and, if the internal alone is tied, the blood can pass by the external and by its facial distribution communicate with the terminal branches of the ophthalmic around the orbit and so maintain fair pressure through the ophthalmic to the internal carotid. No advantage seems likely from ligation of the veins about the orbit.

Is ligation of the common or internal carotid free from danger? In a traumatic case in a young person with good arterial tissue, yes. In people up to fifty whose arteries are not thickened it is safe, but after this there is a danger of cerebral softening. I once ligated the common carotid in a man of fifty-nine for secondary hæmorrhage, but he died of cerebral softening two days later. There is a type of arterio-venous aneurysm of the internal carotid and cavernous sinus which is not the result of trauma, but of syphilitic disease of the artery with rupture of a small aneurysm. Not only is it extremely dangerous to ligature the internal carotid in such a case, but both eyes may be involved.

Rupture of the Spleen.

On March 8, at 10 p.m., a taxi-driver, owing to an accident to his steering gear, crashed into a post:

He was taken to hospital in a dazed condition, complaining of pain in the left side of his abdomen and over his left lower ribs. On examination he was tender in the left hypochondrium and over the lower part of the left side of the thorax, but no fracture of the ribs could be detected. His pulse was full and strong and he showed no signs of intraperitoneal hæmorrhage. There was no hæmaturia.

On March 12, at 4 a.m., he had a sudden pain in the left side of his abdomen, fainted and dulness was present in the left flank. His pulse rate increased to 140, his mucous membranes became blanched and he was obviously bleeding into his abdominal cavity. At operation a lacerated spleen was found and removed. He ultimately recovered.

A small girl, aged ten years, was knocked down by a motor-car and the wheels passed over the lower part of her chest and upper part of her abdomen:

On admission to hospital she was blanched. Her pulse rate was 150. There was dulness in the left flank and tenderness over the whole abdomen. The urine did not contain blood. The abdomen was opened and the vessels were found partially torn away from the hilum of the spleen. In addition there was a laceration of the anterior surface of the liver, evidently produced by pushing the liver against the obliterated umbilical vein as it runs from the navel to the under surface of the liver. The spleen was removed and the liver sutured. The patient recovered.

These two cases of ruptured spleen show two clinical varieties of this accident. One is acute or ful-

minating in its signs. The patient, when examined, shows all the classical signs of rapid loss of blood. The other is insidious in character. Though the injury has been severe and the patient suffers great pain, his pulse may be slow in rate and of moderate volume. He may show no signs of loss of blood nor at the time of examination has he lost much blood. Two or three days later, when he seems to be convalescing, he is attacked with a severe pain in the abdomen, faints and quickly passes into a condition indicating severe internal hæmorrhage. Such a type of laceration may be found also in the liver. At the time of injury the organ is bruised or torn; a small amount of blood escapes and the ruptured surface of the viscus glues itself on to the diaphragmatic peritoneum and later some effort, such as coughing or turning in bed, may pull the surfaces apart and the bleeding begins again; but on this occasion the blood pressure is high, whilst in the first instance it was probably low from shock. In other cases the peritoneal surface of the organ may not be ruptured and a sub-peritoneal hæmatoma forms which later ruptures. The laceration of the liver by the round ligament is not uncommon in crushing abdominal injuries. I have seen it three times.

Perforated Gastro-Jejunal Ulcer.

J.D., aged forty-four years, was admitted to hospital on account of sudden, violent pain in the left side of his abdomen beginning about four hours previously:

He did not vomit. The pain recurred in spasms. His temperature was normal and his pulse rate seventy-two. He was tender in the left side of his abdomen from hypochondrium to hypogastrium. Eighteen years previously an operation had been done on his stomach for "gastric ulcer." At another time his appendix had been removed and a third operation performed had been on his right kidney. Since the operation on his stomach he had suffered from indigestion. Pain at varying intervals after eating, often relieved by taking food, acidity and eructations were the chief symptoms.

In the diagnosis of this man's condition I with difficulty escaped a grievous blunder. It probably happens to most practitioners that occasionally a patient inspires them with a professional prejudice, as this patient inspired me. He knew so much of surgeons and surgery and his own anatomy in particular, giving relevant and irrelevant details in profusion during the examination, that prejudice so blinded me to his history and abdominal rigidity that I decided to wait till morning. It was only when I was half way home that I reasoned out his condition. The surgeon who had operated on his stomach, I knew did gastro-jejunostomy only by the anterior method and used silk throughout. The succeeding symptoms of indigestion might be due to an ulcer forming at the line of anastomosis and a perforation of such an ulcer would involve the small intestine area at once, as the transverse colon and its mesentery, owing to their position behind the ulcer, would offer no barrier to the stomach contents.

Making a tentative diagnosis of a perforated anterior gastro-jejunal ulcer, I returned to the hospital and operated. Such a perforated ulcer was present and the loop of intestine and the portion of stomach involved with the contained ulcer were removed. The stomach wall was sutured and the intestine anastomosed. The patient recovered.

Gastro-jejunal ulcer is one of the sequelæ of gastro-jejunostomy which leads to disappointment after this operation. The ulcer may develop, as in this case, at the suture line or it may appear in the

jejunum beyond the anastomosis. It is usually single. The cause is not clear, but is regarded in most instances as being due to faulty technique, such as bruising of the tissues by clamps, the development of a hæmatoma, or the use of unabsorbable sutures. In a case of perforated gastro-jejunal ulcer occurring in the practice of a colleague, the unabsorbed silk suture was floating from the perforated ulcer. Hyperchlorhydria has a large share in its development. This type of ulcer seems to occur only in those cases in which the short-circuiting has been done for simple ulcer. It does not follow in cases of carcinoma. It is twice as frequent in those patients who have had anterior gastro-jejunostomy performed. Gastro-jejunal ulcers may appear soon after the operation or the patient may be well for weeks or months and then symptoms appear suggestive of the original trouble. The ulcer may perforate acutely, as in this case, or chronically into a neighbouring viscus.

The treatment may be very difficult. In the anterior variety excision of the ulcer-bearing area is comparatively easy, but in the posterior form it may be of exceeding difficulty, owing to the proximity of the middle colic artery and adhesion to the pancreas, etc.. In the four cases with which I have had to deal, I have excised the affected part of the stomach and jejunum, closed the stomach and anastomosed the intestine, leaving the parts as they were before the short-circuiting was done, because no evidence remained of the original ulcer demanding the gastro-jejunostomy.

Perforation of an Enteric Ulcer.

The next case is an example of how much the human system can tolerate from disease and surgery:

A hairdresser, aged thirty-six years, had been feeling indisposed for ten to twelve days, when he had a sudden, agonizing pain in the region of his navel, so severe that he fell down. Three hours later, when he was admitted to hospital, the pain was still present, but coming on in spasms. He looked gravely ill. His tongue was dry; his temperature was 38.9° C. (103° F.); his pulse was small and frequent; his lips and teeth were covered with sordes. His abdomen was rigid and tender; the liver dullness was absent. It seemed certain that a hollow viscus had perforated and, judging by his history, appearance and temperature, it was probably an enteric ulcer.

An incision was made through his right rectus and a perforated enteric ulcer found fifteen centimetres (six inches) from the caecum. It was closed and a tube put into his pelvis through a stab wound.

During the next thirteen days he struggled on, apparently troubled more by the enteric than the perforation. Then he was attacked by a second agonizing pain. His pulse rate rose to 130 and his temperature to 40.5° C. (105° F.). His condition seemed desperate. He was tender and rigid in the lower part of his abdomen and it was thought that a second perforation had occurred.

A median sub-umbilical incision was made and free yellow pus found in the abdominal cavity. All the coils of small intestine were glued to each other with lymph; but little effort was made to find a perforation. However, a foul abscess was present in the recto-vesical pouch and this was drained.

Eighteen days later, after a stormy passage, his temperature had fallen to 37.2° C. (99° F.) and his pulse 100. He had complained of irregular pain in the right hypochondrium for two days, which had increased until he

could not endure it. An examination showed a large, tense gall bladder, thought to be due to a typhoid infection.

He was operated on a third time and an empyema of the gall bladder was found with a single calculus blocking the cystic duct. The stone was removed and the gall bladder drained. After this he recovered completely.

Gangrene of the Intestine.

In June, 1919, a woman was brought into hospital complaining of abdominal pain:

She had vomited and had obstinate constipation. Her abdomen was distended, very tender, but not rigid. Her condition was so low that operative interference was not considered advisable. After saline injection had been given for some hours by the rectum, her pulse became perceptible and an operation was performed. Several feet of small intestine were found to be gangrenous from mesenteric thrombosis and were resected. The patient died the next day.

A woman, aged sixty-five years, became suddenly ill with severe abdominal pain and vomiting:

The pain continued for two days, when she was admitted to hospital. The vomit had been at first stomach contents, but later had become very dark, as if it contained old blood. No bowel movement had taken place since the pain began. When examined in hospital she was found to be a stout woman, evidently in great pain. Her pulse was so irregular as to suggest auricular fibrillation. Her abdomen was much distended, very tender all over, but not rigid. Her abdomen was opened and 320 centimetres (ten and a half feet) of gangrenous small intestine resected for superior mesenteric thrombosis. The patient died three days later.

Both of these cases are examples of an extremely fatal disease. It is said that the death rate is about 94% in the acute variety of the disease. In one, the auricular fibrillation was suggestive of mitral disease, which could account for an embolism. Each patient was admitted with the diagnosis of acute intestinal obstruction and this is the condition mesenteric embolism or thrombosis resembles most clearly. The diagnosis is not often made, probably because the condition is not considered in the differential diagnosis. The disease may be suspected in a patient stricken with a sudden, agonizing and then continuous abdominal pain, vomiting, collapse, rapid rise of pulse rate, distended abdomen, with tenderness out of proportion to the rigidity; if blood is present in the stools and no intussusception palpable, the diagnosis may be made positively.

These patients present the appearance associated with acute intestinal obstruction that has advanced much farther towards a fatal termination than would be expected considering the duration of the illness. A high obstruction may go so rapidly down hill, but the distension is not so general. An acute pancreatitis may cause difficulty also.

In operating the danger is in not removing enough intestine, as the gangrene may be progressing at the time of operation. Such was the case in the patient from whom 320 centimetres of intestine were removed. At autopsy it was found that the gangrene had spread a few centimetres beyond the anastomosis. It is advisable not merely to excise wide of the blackened bowel, but also considerably beyond the pale or greyish bowel which borders the blackened, for the greyish appearance is due to a mucosa already becoming gangrenous showing through the outer coats which still appear healthy.

Reports of Cases.

OPTIC NEURITIS OF NASAL ORIGIN: RECOVERY AFTER OPERATION.

By E. TEMPLE SMITH, F.R.C.S.E., D.O. (OXON.).

Senior Ophthalmic Surgeon at St. Vincent's Hospital and the Royal Alexandra Hospital for Children, Sydney.

MRS. S., aged forty years, was sent to me on August 5, 1922, by Dr. Shedden Davis. Her history was that ten days previously the right eye had become painful, especially on movement. The pain was of an aching character and felt as if it was at the back of the eye. She felt more or less ill and as if she had a subacute "cold." For a week after the onset of these symptoms the sight was not noticeably affected; then she began to notice a "haze" in front of the eye, as she expressed it. At the time I saw her she had no pain on movement or otherwise, but the sight was almost gone.

On examination I found on the right side that the sight was only "hand movements" and there was an intense optic neuritis.

I reported that in view of her history the nasal sinuses were the most probable source of the trouble. Dr. Shedden Davis sent her to Dr. Dunn, who reported as follows: "I operated on August 8 and did a partial resection of the septum, removed both middle turbinates, tapped both posterior ethmoidal cells and found muco-pus in both, but chiefly on the right side. She could count fingers within two days of the operation."

I saw her again on September 7, 1922, and found her vision normal. All trace of the neuritis had disappeared.

Reviews.

PRESENT-DAY NEUROLOGY.

For an eminently instructive volume on neurology we are indebted to Professor Pierre Marie, of Paris, to whom the idea occurred of summoning meetings of neurologists and inviting twenty distinguished members each to deliver a lecture on a subject which he had specially studied and which was of present-day interest. These papers, every one of which is a masterpiece, are here collected and printed. It need scarcely be said that they contain much that is not to be found in the most recent text-book. They are also of such equal quality that we must dwell on none in order that all may receive mention.

It is a compliment to British Neurology that Kinnier Wilson was asked to read the opening paper on "Progressive Lenticular Degeneration." Ch. Chatelin chose "Cerebral Tumours" and the localization of these growths forms the better part of his paper. Curiously he does not mention Dandy's ventriculography. H. Claude on "Increased Intracranial Pressure and Serous Meningitis" took diagnosis, causes and treatment, all of which present difficulties. G. Roussy on "Sensory Disorders of Cerebral Origin" considered the thalamic syndrome and those disturbances of common sensibility which arise from cortical injury—phenomena with which we have been made acquainted by the writings of Henry Head. Georges Guillaumin gave an excellent clinical account of "Traumatic Lesions of the Spinal Cord" and duly credited the observations of others outside France. G. J. Lhermitte read a most comprehensive and yet concise paper on "Encephalitis Lethargica." He may excuse us for indicating that we do not agree that the Australian epidemic of 1917-1918, investigated by Cleland and Campbell, Breinl and others, was one of *encephalitis lethargica*. Unmistakable cases of *encephalitis lethargica* did not reach Australia until a later date. A.

¹ "Questions Neurologiques d'Actualité: Vingt Conférences Faites à la Faculté de Médecine de Paris, 1921," par Vingt Auteurs: 1922. Paris: Masson et Cie; Royal 8vo., paper cover, pp. 551, with 142 figures. Price: Frs. 28 net.

Souques, discussing "*Paralysis Agitans*," favoured the idea that an infective agent was at work and that eventually the agitant state would come to be regarded as a syndrome. Post-encephalitic Parkinsonian phenomena were taken into consideration. A. Babonneix suggested a new etiological grouping of "*The Infantile Encephalopathies*," viz., inherited syphilis, trauma at birth and parental alcoholism. André Léri, describing "*Syphilitic Muscular Atrophy*," boldly stated that progressive muscular atrophy was of syphilitic origin, not exceptionally, but ordinarily, and specially advised us to think of syphilis in the presence of a case of the Aran-Duchenne type. Paul Sainton, on "*Exophthalmic Goitre*," compared our knowledge of to-day with that of twenty years ago, when this condition was looked upon as a neurosis. J. A. Sicard, on "*Neuralgias and Their Treatment*," gave a paper of great practical value and a perfect lesson on the importance of accurate diagnosis. O. Crouzon, on "*Atypical Familial Diseases*," dealt with those common examples of familial diseases, e.g., the myopathies, Thomsen's and Friedreich's disease, which did not conform to type. Poulard read a good academic paper on "*Modifications of the Pupils*." Ch. Foix, on "*Medullary Automatism*," discussed reflexes, synkinesias and contractures. Laignel-Lavastine wrote on "*Thyreoid psychoses*." Ch. Vurpas described "*Minor Mental Syndromes*," particularly obsessions. Georges Burguignon took "*Chronaxie*." P. Béhague, on "*Traumatic Epilepsy*," showed that 12% of head war wounds led to this condition and that the injury was usually parietal. Concerning the indications for surgical treatment he wrote with due restraint. Henri Buttier, on "*Status Epilepticus*," emphasized the danger of its onset in the course of ordinary epilepsy should treatment happen to be suspended. Pierre Marie closed with a paper on aphasia. He remained more than ever convinced that there were no special speech centres and asked his opponents to answer these questions. What anatomist has ever found a speech tract? Why cannot the deaf speak, excepting after education? Why, in cases of right-sided infantile hemiplegia, is speech not destroyed? What evidence of such centres have we gained from the recent study of innumerable war injuries to the brain?

THE SEXUAL LIFE OF WOMEN.

THE sex impulse is so powerful a force, the need for its adequate control so imperative and the facilities for enlightenment so limited that the existence of disordered sexuality cannot cause surprise. The solution of the problems it presents is a matter of real difficulty.

"Sex Problems in Women," by Dr. A. C. Magian¹ is a comprehensive summary of the sexual life of women. The grosser forms of perversions and abnormal sex impulses are referred to, but not dwelt upon. The author does not indulge in lengthy reports of these occurrences. The milder manifestations of the sex impulse and disordered sexuality in relation to the individual, married life and society are discussed at greater length.

The book covers a great deal of ground and includes chapters on such diverse subjects as the effects of disease upon sexuality, the prevention of conception, abnormal coitus, prostitution and clothing. The author expresses broad views on the subject of masturbation and draws attention to the force of example in originating this practice.

The subject of love is dealt with in relation to the sexual passion and from an unsentimental point of view. Emphasis is laid on the prominent part played by the sexual relationship in creating many of the difficulties that may occur in married life.

Increased sexuality, sexual frigidity and sexual aversion are allotted each a separate chapter.

Descriptions of the anatomy and physiology of the female reproductive system, of the nature of puberty and morbid conditions of this period, of the mechanism of menstruation

and the menopause, with their disorders, belong as much to gynaecology, but are necessarily included in a work of this kind.

The author does not agree with "the sexual philosophers who see the influence of sex and sexual passion in practically every action and thought." He does not seek support for his theme among the ruins of the "unconscious." The book is readable and practical and contains much to interest the practitioner and the student of sex problems.

DENTAL SURGERY.

PARFITT'S "*Operative Dental Surgery*,"¹ is a carefully written and concise work dealing with all the usual phases of operative dentistry, beginning with the method of handling patients. Each of the twenty-four chapters is devoted to a separate subject.

In the chapter on pulpless teeth and their treatment the author gives a careful review of the majority of the generally accepted methods of treating teeth with infected pulp and the prevention of systemic disturbances caused either by primary infection of the pulp or secondary infection due to faulty technique.

The illustrations depicting the manifold varieties of form and of the terminations of the canals, the consideration of the physical condition of the patient under treatment and the descriptions of the condition of the peri-apical tissues are worthy of careful study. The possibility of the passage of micro-organisms through living tissues or through the blood stream to the peri-apical space is briefly mentioned. The author maintains that the more logical conclusion appears to be that bacteria would be deposited in glands or excretory organs.

The chapters in which he discusses the devitalization of teeth, the precautions against accidental infection extending to the peri-apical space, the sterilization of dentine, the method of cleaning and filling of the root canals and the treatment of septic teeth with healthy cementum and periodontal membrane constitute a reliable summary of modern methods of treatment.

The remaining chapters, although embracing nothing new, are quite equal to the chapter dealing with the more controversial subject of so-called "dead teeth" and their treatment. It is a good book.

GOUT, RHEUMATISM AND ARTHRITIS.

DR. PERCY WILDE has written a book entitled "*The Physiology of Gout, Rheumatism and Arthritis*" as a guide to accurate diagnosis and efficient treatment, which he states is the result of his experience during a thirty years' practice in the city of Bath.² He presumes those diseases are all due to one cause, namely, what he terms the lactic acid diathesis, and he considers the fever of acute rheumatism as physiological and not pathological; hence the title of his book.

Relatively speaking, the best part of the work is a description of a series of experiments made by him in an endeavour to prove that the urate of soda illustrated by Garrod in his work on gout is lacto-phosphate of lime. On page 60 Wilde gives two plates: one illustrates the urate of soda of Garrod (Figure 18) and the other (Figure 19) the lacto-phosphate of lime of Wilde. Their appearances are almost identical, but it does not occur to the author that chemical analysis would settle this difference of opinion definitely.

His criticism on the use of salicylates in acute rheumatism is quite unwarranted.

This book cannot be recommended to the general practitioner or consulting physician, as it is no guide to diagnosis or treatment.

¹ "*Operative Dental Surgery*," by J. B. Parfitt, L.R.C.P., M.R.C.S., L.D.S.; 1921. London: Edward Arnold & Company; Demy 8vo., pp. 319, with 108 figures in the text. Price: 21s. net.

² "*The Physiology of Gout, Rheumatism and Arthritis as a Guide to Accurate Diagnosis and Efficient Treatment*," by Percy Wilde, M.D.; 1921. Bristol: John Wright & Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent & Company, Limited; Demy 8vo., pp. 220, with 31 illustrations. Price: 12s. 6d. net.

¹ "*Sex Problems in Women*," by A. C. Magian, M.D.; 1922. London: William Heinemann (Medical Books), Limited; Demy 8vo., pp. 219. Price: 12s. 6d. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 7, 1922.

The Public Health Association of Australasia.

THE SECOND ANNUAL MEETING OF THE PUBLIC HEALTH ASSOCIATION OF AUSTRALASIA has recently been held in Sydney. Immediately preceding this meeting the Commonwealth Department of Health held three important conferences with the State health authorities on the control of foods and drugs, venereal disease and industrial hygiene. In consequence of these conferences there were assembled in Sydney representatives of the several States, including the chief medical officers of the health departments and other experts in the various branches of hygiene.

The subjects discussed at the annual meeting were varied and interesting. Summaries of the papers read and of some of the remarks in discussion were recorded in the daily press and thus reached the large public, for whose benefit these lessons in preventive medicine have been compiled.

To a certain extent the meeting was a success. The departmental medical officer was given the opportunity of emancipating himself from the political trammels of his office and of expressing views to a certain extent dissociated from the ministerial control that moulds his administrative activity. The private medical practitioner, sanitary engineer, pedagogue and other experts in the science of healthy living were able to voice individual opinions and to dispute among themselves and with the official experts matters of concern to the public. It is, of course, inevitable under the conditions of the annual meeting of a society that hazardous hypotheses and half-considered doctrines are ranged together with the accepted teaching of the day. Free speech is essential at any gathering of men and women intent on the herculean task of healing the world.

A censor would be entirely out of place at these Meetings. But this freedom of utterance in connexion with matters of vital interest to the community at large has obvious disadvantages. The reader of the daily newspaper is incompetent to differentiate between the spurious and the real and is often tempted to accept unsound views because they have been fathered by a person of a self-advertising type.

Experience shows that it is eminently unsafe to depend on resolutions of annual meetings and congresses, inasmuch as the majority of those attending and voting have not given the subject of the resolution sufficient consideration to justify the expression of an opinion.

The Public Health Association of Australasia is a young organization. It has yet to establish its position as a serviceable institution performing an important function. Its preliminary machinery was created at the last meeting of the Australasian Association for the Advancement of Science in Melbourne.

An executive council was elected with members in every State of Australia. The management of the Association was vested in a small executive committee in Melbourne. A constitution was framed according to which the Association was to be non-departmental and non-political and its objects were to be the protection and promotion of public and personal health.

In the course of time branches were formed in the States of Victoria, New South Wales, Queensland and South Australia. Attempts to form branches in Western Australia and Tasmania have not yet been successful. For the smoother and more effective working sections were instituted and these sections were invited to investigate certain problems of a technical nature. The executive committee further asked the branches to study and discuss selected questions simultaneously, so that the Association might have the advantage of the findings of groups of members on the same subject. The first annual meeting took place in Melbourne and a considerable amount of enthusiasm was revealed. In South Australia much activity was displayed and the cooperation of the press was enlisted. The work was conducted strictly in accordance with the spirit and

letter of the constitution and more particularly no attempt was made to involve the whole Association in regard to the views of individual members. In Victoria the branch work has remained somewhat irregular. There have been short periods of keen activity and these have been followed by a reactionary inertia. In New South Wales the branch remained a toy for a considerable time. A handful of members met from time to time, but very little was achieved. In Queensland an ambitious programme was prepared and a great deal of careful and elaborate thought and research was devoted to many subjects. Unfortunately the leaders failed to recognize the necessity of adapting the plan of development to the requirements of an integral part of an organization.

In order that the influence of the branch might be increased, arrangements were made for the affiliation of the Queensland Branch of the British Medical Association and of other bodies interested in public health and preventive medicine. The affiliated bodies were naturally not concerned with the question of the sanction of the whole Public Health Association to any policy evolved by the local branch. In consequence, this step tended to a certain extent to detract from the purpose for which the branches were founded, although the linking up of the agencies must be regarded as highly desirable.

It will be seen that the Association is not yet firmly established. On the one hand there is danger that it may fail from want of steady work and enthusiasm; on the other hand an excess of zeal may embarrass the executive and lead to difficulty in government. It is suggested that the Association should seek incorporation under the *Companies Acts*. It would seem that by tightening up the control and by enclosing the constitution within the four corners of a legal document the second danger might be eliminated.

The Public Health Association of Australasia has a diminutive official publication called the *Monthly Bulletin*. This periodical is too small for its purpose as an education medium and is unsuited for the mere conveyance of branch news. It is now proposed to produce a more substantial quarterly magazine which could serve the former objective.

It is desirable that the organization should be moulded into a uniform and utilitarian movement. It should be strong enough to absorb the numerous local societies aiming at the improvement of the physical conditions of the people. It should be the standard means of educating the people in hygiene and the prevention of disease and it should act as the common debating ground for all persons who are professionally concerned with problems involved in that large subject spoken of as hygiene. If judiciously and temperately managed, it should become an important factor in communal life.

THE PREVENTION OF DIPHTHERIA.

EACH year there is an unnecessary wastage of valuable lives and a regrettable loss of energy and money in the Commonwealth resulting from diphtheria. The annual statistics reveal a deplorable state of affairs, a definite defect of the machinery for the protection of the public health. This defect is not less serious because it obtains in all countries and is perennial. The aetiology and pathology of the disease is well understood; much information concerning its epidemiology has been collected; the possibility of its prevention has been demonstrated. It may be of use to direct attention to the facts on which these statements are based and to urge those who are responsible for the preservation of the public health, to introduce new methods for the prevention of this dangerous disease.

Last year no less than 23,192 infections were notified in Australia. This is approximately equivalent to an incidence of 4.6‰. All the States were involved, although the disease was commonest in Tasmania and least prevalent in Western Australia. The figures of the notification for the Commonwealth during the past five years are significant. They are: For 1917 13,607, for 1918 19,018, for 1919 12,811, for 1920 18,183, for 1921 23,192. The curve is so irregular that it cannot be regarded as being quite reliable. It is no doubt composed of many epidemic curves of varying extent and severity. There is evidence that the true incidence of the disease is higher than the notification figures, since for many mild infections a medical practitioner is not

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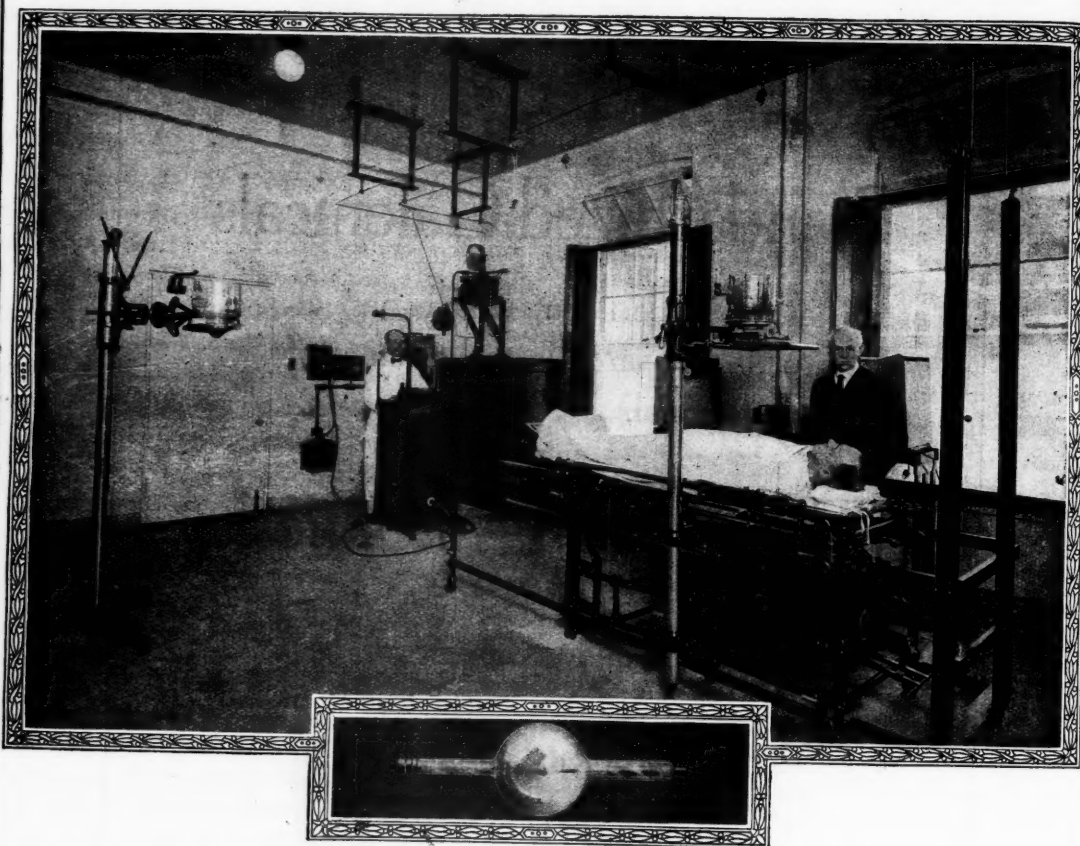
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FACTORY AND LABORATORY: Richmond, Victoria.

consulted and further some medical practitioners are neglectful of their duties in this regard. The mortality figures reflect a somewhat different condition.

In 1917 there were 639 deaths from diphtheria. The number dropped during the following two years to 550 and then rose steeply to 805 in 1919 and 898 in 1921. Assuming that the case mortality has remained more or less unaltered during this short period, it would seem that the true epidemic curve should be smoother than the notification curve. The death rate ranged between 4% and 4.5% in four of the six States during the year 1921. In Victoria, where the incidence according to the notification figures was equivalent to 3.5‰ of the population, the death rate was 3.3%. In Tasmania the incidence was about 8‰ and the mortality only 2.65%. It is not impossible that a series of mild but wide-spread epidemics occurred in Tasmania. The salient facts of these figures are, firstly, that there has been a considerable increase in the actual and relative incidence of diphtheria during the last two years and, secondly, that the number of deaths is alarmingly high.

The medical profession should manifest concern in regard to the death rate, for it has been demonstrated years ago that it is possible to reduce the mortality to a vanishing point. We have called attention to the fact that if antitoxin is administered on the first day of the disease, all or nearly all the patients recover. With each day's delay the prognosis becomes steadily worse. As a rule the diagnosis is not difficult. The practitioner suspecting diphtheria should invariably make a culture from the faucial mucus or take a swabbing and transmit the swab to a recognized laboratory for report and at the same time inject a full dose of diphtheria antitoxin pending the confirmation of his provisional diagnosis. This should be done at the first visit, for delay is dangerous and no harm results if a dose of diphtheria antitoxin is injected into a child who is not suffering from diphtheria. It is unsafe to rely on a clinical diagnosis without taking advantage of a bacteriological control. And it is indefensible to neglect the one method of efficient treatment.

Of far greater importance than treatment is the

adoption of preventive measures. Ever since Klebs discovered the causal organism in 1883 and Löffler introduced the method of distinguishing it with certainty in the following year, the possibility of combating the infection has been a question of practical politics. For many years it has been recognized that persons recovered from diphtheria and some who have not manifested the signs of the disease, may harbour these bacilli and may infect healthy persons.

The health authority in almost every part of the world insists on the notification of infections as the first step in prophylaxis. Unfortunately, the onus of dealing with local outbreaks is imposed on the local authority, who persistently fails to carry out the second step in the prevention. In some districts the local health authority leisurely sends a sanitary inspector to examine the drains of the house wherein a patient has had diphtheria. The idea of tracing the source of infection does not occur to the persons concerned in the municipal councils. If it should be suggested, it is brushed aside as much too cumbrous and much too expensive a procedure to adopt. The central authority is not prepared to act directly and as a rule nothing further is done. At times an energetic practitioner seizes the opportunity, examines the faucial mucus of all the children at a school or in an institution, isolates the children with mild attacks and the carriers of diphtheria bacilli and then proceeds to ascertain by means of the Schick test which are the susceptible children.

The last item in the prophylactic programme is the immunization of the susceptible persons by injecting toxin-antitoxin mixture. These measures are invariably successful in checking the spread of infection. There is small doubt that, if widely applied, they would gradually reduce the incidence of the disease and perhaps conquer it altogether. But it is evident that reliance cannot be placed on the local authorities to perform the necessary tasks unless the responsibility is vested in the medical officer of health, who is empowered on the one hand to obtain the collaboration of the general practitioners of the district and on the other to seek assistance of the central authority when a specially difficult problem presents itself. The applica-

tion of the Schick test renders the task much easier than it was formerly. But a large measure of success was possible in the olden days, when reliance had to be placed exclusively on the results of the bacteriological examination of the faucial mucus. The value of toxin-antitoxin immunization is considerable, but it must be remembered that this expedient is more than ten years old and that the medical profession has complacently acquiesced to a policy of inertia during these ten years. There is much talk of modern public health administration. Here is a relatively simple problem to which modern methods can be applied. The cost involved is not prohibitive, seeing that in Australia alone there are eight hundred and more persons to be saved each year and over twenty thousand to be spared an uncomfortable, expensive and dangerous illness. Surely the persistence of these disastrous happenings should be stopped without further loss of time.

AUTO-HAEMO-AGGLUTINATION.

WHEN an animal is treated systematically with the blood cell of an animal of another species, substances known as hæmo-agglutinins are formed in its serum. Bordet was amongst the first observers who described the phenomenon of hæmo-agglutination. He destroyed the hæmolytic property of the treated blood serum by heating it to 56° C.; in other words, he rendered the complement inactive and found that the hæmo-agglutinins already produced agglutinated blood cells introduced into it from an animal of the second species. Hæmo-agglutinin, unlike hæmolysin, is relatively thermostable, so that heating of the serum does not interfere with the agglutination. If it be not heated, rapid hæmolysis will often obscure agglutination. In 1900 Landsteiner and Shattock independently of one another discovered that the sera of human beings, when treated with the blood cells of other individuals, developed iso-agglutinins and as a result of the work of several observers it was shown that all human beings could be divided into four permanent groups according to the way in which their sera inter-agglutinated.

If the phenomenon of agglutination be looked at in the light of Ehrlich's side chain theory, it will be regarded as a chemical union of an amboceptor agglutinin and receptors in the form of agglutino-gen. Landsteiner showed that the phenomenon of human iso-agglutination could be explained if it be assumed that there are two iso-agglutinins and two iso-agglutinogens which can appear in various combinations in human blood. Thus one group contains both iso-agglutinins but no iso-agglutinogens, another contains the first iso-agglutinin and the second iso-agglutino-gen, a third group will possess

the second iso-agglutinin and the first iso-agglutino-gen and the fourth group no iso-agglutinins but both iso-agglutinogens. These groups have been arranged differently by many observers. The various classifications were explained and differentiated clearly by Dr. Tebbutt in this journal in the issue of February 25, 1922. As far as is known, these groups are permanent. The disappearance of the power of a serum to agglutinate corresponding erythrocytes may be due to the appearance of an inhibitory agent, spoken of as anti-agglutinin. It has further been pointed out that the bodies which take part in the agglutinin-agglutino-gen reaction are probably colloidal in nature. Bordet conducted extensive experiments in this direction, using as his basis observations that he had made in the precipitin reaction. He came to the conclusion that it was not the agglutinin which caused agglutination, but that its union with agglutino-gen produced an alteration in colloidal stability and that agglutination was the result of the action of electrolytes.

In this connexion it is interesting to note that Dr. I. J. Kligler has recently described an instance of auto-hæmo-agglutination of human red blood corpuscles.¹ The patient was a pregnant woman who was very anæmic on account of repeated bleeding from hæmorrhoids. She had had malaria four years previously and suffered from a compensated mitral cardiac lesion. She passed blood-stained stools, but no organisms of bacillary or amœbic dysentery were discovered. There was nothing abnormal in her family history. Examination of the urine failed to reveal any abnormal features and the temperature and pulse charts were normal.

Several blood counts were made after her admission to hospital. Two months later she became worse, abdominal pain increased and the stools became frequent and more blood stained. An attempt to make a blood count at this stage revealed the phenomenon of auto-agglutination of the red cells. After a normal confinement the phenomenon persisted until the patient's discharge from hospital.

Dr. Kligler states that faultiness on the part of the pipettes and diluting fluids was eliminated by repeated trials. He confirmed the findings which he states were made by Landsteiner, namely, that auto-agglutination only occurred at a low temperature. The phenomenon was observed repeatedly at room temperature of 20° C. or lower, but, though Dr. Kligler made many efforts, no agglutination occurred at body temperature. Agglutination which had occurred at a low temperature was broken up at body temperature for half an hour. Dr. Kligler washed some of the patient's blood cells till they were free of serum and by cross-agglutination of the patient's cells and serum with those of a normal individual found that the causative agglutinin was present in the patient's serum and was not due to any peculiarity in her blood cells.

Dr. Kligler does not state to which groups the patient or normal person belonged. Several dilutions were made and agglutination occurred with only slight variation when the titre was as low as

¹ The Journal of the American Medical Association, April 22, 1922.

one in one hundred and sixty. The phenomenon was tested as occurring between the blood of mother and child. The agglutinins persisted in the mother's serum and agglutinated the child's blood cells, but no agglutinins were detected in the child's serum.

It is difficult to offer an explanation of this series of changes as described by Dr. Kligler. It is assumed that no agglutination occurred in the body of the patient, firstly, because there were no manifestations of the occurrence of this phenomenon and, secondly, because it was shown *in vitro* that agglutination only occurred at a low temperature. It is conceivable that after the blood had left the patient's vessels, an alteration in surface tension or colloidal stability may have occurred which interfered with the normal inhibition of action between the receptors and the amboceptor agglutinin. Lastly, it must be remembered that the whole fabric that has been built up around this fascinating subject is in a large measure hypothetical and that there may be other factors of importance and perhaps of variable nature that have not yet been discovered.

RADIOLOGY IN OBSTETRICS.

The science of radiology has been applied successively to almost every branch of medicine. Both surgeons and physicians have been quick to realize the very material help that can be gained by an appeal to the radiologist. The obstetrician has been perhaps the last to make use of this additional aid to diagnosis. In the past this may have been partly due to a fear that exposure to the rays would have an injurious effect on either mother or *fœtus in utero*. It has been shown, however, that with the modern type of apparatus the risk to either is negligible.

Among the workers in this field are Mackenzie, who in 1918 endeavoured to apply radiology to pelvimetry and Sjogren, who in 1913 distinguished between extra- and intra-uterine pregnancy by means of a skiagram. Recasens in 1921 published a series of skiagrams in which he had been able to diagnose twin pregnancy and which showed various maternal deformities and hydrocephalus. Cornell combined radiography with the production of a pneumo-peritoneum in order to establish the diagnosis of an unruptured extra-uterine pregnancy.

The subject has been discussed recently by Dr. D. A. Horner.¹ Dr. Horner states that he regards it as impossible to show a *fœtus* before there is sufficient ossification to form a skeleton. He points out that centres of ossification are frequently not of sufficient density to be recognizable as such when surrounded by *liquor amnii* and dense maternal tissues. They are often mistaken for calculi, enteroliths or phleboliths. He asserts that the presence of the *fœtus* cannot be demonstrated until after "quickening" has occurred and that after this time it

becomes a comparatively easy matter in women of average weight. X-ray methods of investigation were used by Dr. Horner in the case of two hundred and fifty selected patients in the Chicago Lying-In Hospital. He claims that a great number of otherwise unrecognizable facts have been revealed by this means. In six patients *fœtometry* by means of the X-rays showed that the passenger was too large for the passages. In these cases Cæsarean section was successfully performed. In reply to the suggestion that radiology prior to Cæsarean section has a devitalizing effect on the peritoneum and acts prejudicially in respect to surgical measures, Dr. Horner states that in no instance of such Cæsarean sections was there any trace of peritoneal involvement. In regard to pelvimetry, it is pointed out that, though the more gross defects may be discovered by external and internal examination, radiography alone can determine the presence of the finer abnormalities. Unfortunately no description or enumeration of any of these as discovered by Dr. Horner in his series is given. He says that higher mathematics are employed in X-ray pelvimetry, but does not indicate how the measurements are obtained. Latterly he has used Chamberlain and Newill's stereoscopic method with good results. The calculations in this method are less complicated.

In regard to the condition of the *fœtus* itself, an interesting communication has been made by Dr. A. B. Spalding.¹ Dr. Spalding points out that it is often very difficult to determine whether a *fœtus* is alive or not. Symptoms and physical signs considered in conjunction with the history are normally relied upon and it is often impossible to arrive at a decision. In cases of this nature radiography offers definite assistance. After intra-uterine death the brain tissue shrinks, but not so the cranial bones. The result is that the latter overlap one another, often to a considerable degree. Dr. Spalding studied twenty-one *fœtus in utero*. In each of three cases the *fœtus* was dead and the typical overlapping was distinctly seen on the skiagrams taken. Eighteen were alive and seventeen of these showed no osseous changes. Overlapping was present in one *fœtus* in which the condition had been caused by moulding in a long first stage of labour. This had lasted for forty-three hours and had been accompanied by rigidity of the cervix. A living child had subsequently been born. Dr. Spalding points out that in the last-mentioned case there was no diminution of the cranial contents and states that the overlapping was easily distinguishable from that caused by intra-uterine death. He regards this as a pathognomonic sign.

The importance of these statements and observations is obvious. The trained and skilled obstetrician may possibly be quite content to rely on his findings by palpation, on the use of the stethoscope and perhaps on careful vaginal or rectal examination. That occasions will arise when these will fail him is inevitable. As an adjunct to the pre-natal clinic the X-ray department is indispensable.

¹ *Surgery, Gynecology and Obstetrics*, July, 1922.

¹ *Surgery, Gynecology and Obstetrics*, June, 1922.

Abstracts from Current Medical Literature.

PATHOLOGY.

Cultivation of Spirochaetes.

I. J. KLIGLER AND O. H. ROBERTSON (*The Journal of Experimental Medicine*, March 1, 1922) have made a careful study of the cultivation and biological characteristics of *Spirocheta obermeieri* (*recurrentis*). They have perfected a method which enables them to cultivate the organisms consistently from the blood of infected mice and rats, to maintain the viability of cultures for periods of at least three to seven weeks and to carry them on in successive sub-cultures by transplanting at intervals of two to four weeks. The method is essentially the same as the Noguchi technique for the cultivation of the *Leptospira* group, but demonstrates control of the physico-chemical factors that act by limiting and preventing growth. Thus the conditions necessary to counteract the injurious influences are prescribed. The authors found that ascitic fluid, horse serum or rabbit serum may be used as culture fluids. These fluids, however, become progressively more alkaline on exposure to air and uniformly successful results depend chiefly on the proper adjustment and stabilization of the reaction. A balanced reaction can be secured by adding 1% of peptone broth or egg albumin as a buffer and covering the culture with a layer of oil. The reaction limits for growth and survival are between pH 6.8 and pH 8.2, with the optimum at pH 7.2 to pH 7.4. *Spirocheta obermeieri* is a strict aerobe, consequently, in order to permit adequate aeration, the oil layer should not exceed 1.5 centimetres in height.

Phagocytosis by Polymorpho-Nuclear Leucocytes in Dead Animals.

H. B. CROSS (*Bulletin of the Johns Hopkins Hospital*, July, 1921) states that one of the disturbing surprises at an autopsy is the occasional presence of leucocytes containing bacteria in transudates that have repeatedly been reported as sterile. In some instances this may be explained by assuming that bacterial invasion and phagocytosis have occurred during the agonal period. In many instances, however, the clinical examinations and cultures have been made so recently before death that the remaining time is altogether inadequate to account for the extensive phagocytosis observed. The author has investigated the capacity for phagocytosis shown by polymorpho-nuclear leucocytes in dead animals and after preservation in salt solution. A sterile peritoneal leucocytosis was produced in guinea-pigs by the injection of five cubic centimetres of a suspension of aleuronat in physiological salt solution containing 3% of starch. Later the animals were killed,

left in the laboratory at room temperature and subsequently injected intraperitoneally with a suspension of *Bacillus proteus*. As a result of his investigations the author concludes that polymorpho-nuclear leucocytes sometimes take up and digest bacteria within the body after death. In one instance these phagocytes remained alive within the body for eleven days after death and were still capable of energetic phagocytosis.

Megacaryocytes in the Peripheral Circulation.

G. R. MINOT (*The Journal of Experimental Medicine*, July 1, 1922) states that a megacaryocyte (megalo-caryocyte) is seen commonly as an occasional cell in the peripheral blood of patients with myelogenous leucæmia. Less commonly they appear in relatively large numbers. The author has also found them in two instances of *polycythæmia vera*, one of lobar pneumonia, one of Hodgkin's disease and in one of sepsis. Their presence is indicative of a bone marrow under intense strain. In general the presence of these cells in the blood is not to be looked on as a desirable type of marrow regeneration, but more as indicative of a marrow disintegration, recovery from which may, however, occur. The megacaryocyte of the bone marrow has been conclusively shown by Wright to be a parent cell of the platelets. There is ample proof that megacaryocytes may become packed in the lung capillaries in various conditions calling forth abnormal or immature bone marrow elements. In the bone marrow the megacaryocyte often characteristically develops a large amount of cytoplasm with amoeboid activity, so that it projects pseudo-pods into the blood channels. The formation of the platelets results from the segmentation of the pseudo-pods. Pseudo-pods not connected with a nucleus are seen not infrequently and may enter the blood stream as undifferentiated bits of cytoplasm. The nuclei are of varying shapes and sizes, stain deeply and present a characteristic spotty internal structure. In the bone marrow the nucleus often appears as a complicated pleomorphic structure that is typically lobate and basket shaped. Owing to its character the nucleus may appear multiple; if it is actually multiple, this indicates degeneration.

Spiral Bodies in Bacterial Cultures.

L. FLORENCE (*Journal of Bacteriology*, July, 1921) has found spiral bodies resembling spirochaetes in cultures of bacterial organisms grown aerobically, as well as in those grown in a limited amount of oxygen. They were regularly present in the condensation water of such cultures. Hitherto this phenomenon has been seen most frequently during the investigation of anaerobes and it has been thought that anaerobiosis and the formation of spiral bodies were in some way connected. It is now evident, however, that they are formed in aerobic cultures. The authors found that the spiral bodies were most abundant

in the condensation water of cultures grown on agar slants and were very rare or entirely absent in bouillon cultures. As has been pointed out by other workers, such spiral bodies are to be distinguished from spirochaetes (i.) by their lack of motility, (ii.) by their reaction towards stains and (iii.) by the impossibility of obtaining them in pure culture. Their relationship with flagella is further proved by their presence in cultures of motile organisms only. Their disintegration when incubated for two to three days in sterile water is evidence of their lifelessness.

Survival of Cells After Death of the Organism.

W. H. LEWIS AND C. C. MCCOY (*Bulletin of the Johns Hopkins Hospital*, August, 1922) state that it is now a matter of common knowledge that cells of certain types can survive for a limited period after removal from the body. The ectoderm especially noteworthy in this regard, appears to be able to live for several days if kept under proper conditions. The test of viability is the "take" of the skin graft. Tissue cultures have shown that most cells not only survive, but more about and even multiply for many days after removal from the body. Epithelial cells have been cultivated for over two months, while connective tissue cells may live and multiply for years. In their study the authors have endeavoured to determine the periods of survival of several different types of cells after the death of the animal under various conditions other than those of tissue culture. Their criterion for life was the presence within the cells of certain granules and vacuoles that have a great affinity for neutral red. Experience with tissue culture has shown that all types of living cells either have or can develop granules and vacuoles with a definite affinity for neutral red. In the strengths commonly used this dye does not stain the cytoplasm of nucleus, nor does it seem to injure the cells. It is a well-known fact that in dead cells of tissue cultures the granules and vacuoles do not take up neutral red as they do in living cells, although the entire dead cell may stain diffusely if the dye is strong enough. Granules and vacuoles that have been coloured with neutral red in the living cell, lose their colour when the cell dies. The authors' criteria for death were: (i.) Loss of colour from the granules and vacuoles; (ii.) diffuse pink staining of the cytoplasm and nucleus; (iii.) the appearance of a sharp and distinct nuclear membrane and a change in the texture of the cytoplasm and nucleus. They found that small pieces of tissue from various organs of the rat examined at varying periods after death, showed that most types of cells survived for a time and certain types of cells survived longer than others. Tissue macrophages survived longest, then came cartilage cells, kidney-tubule cells and so forth, ending up with nerve cells. Macrophages survived for about two hundred and forty hours, brain cells for less than an hour.

PÆDIATRICS.

Oral Disorders in Pædiatrics.

SAMUEL A. COHEN (*The American Journal of Diseases of Children*, August, 1922) states that the responsibility in regard to oral diseases must rest on the physician rather than on the dentist, as the opportunity of detecting and preventing potential disturbances comes to him whose contact with the patient commences early and continues with more or less frequency. The formation of the teeth of the unborn child may be impaired in one or two ways: (i.) By lack of suitable material with which to form teeth and (ii.) by impairment of formation by toxæmias. It is obvious that the fetus needs the salts of calcium and phosphorus in the formation of teeth and it must depend on its mother for that supply. Vitamins are most essential, so that salts may be utilized. Therefore, besides other essentials necessary to attain proper metabolism the mother should have a well-balanced diet, giving special attention to those foods which contain mineral salts and vitamins, if good deciduous teeth are to be formed. Although the tissues of the mother rather than of the unborn child suffer from acute or chronic toxæmias, nevertheless these toxæmias probably cause serious impairment of the formation of tissue, because of disturbances of metabolism with diminution of available salts for teeth formation. Hence it is important that all sources of toxæmia, including dental disorders, should be eliminated in pregnant mothers. The formation of teeth, both temporary and permanent, is subject to many disturbances, particularly those of infection and nutrition. Oral disorders, especially in the first months of life, frequently result from practices which are thought to be required by good hygiene. The epithelium of the mouth of the infant in the early months is very sensitive to trauma. Even the slightest trauma may be followed by infection. It has been demonstrated repeatedly that infants who do not receive any mouth cleaning before the eruption of the first tooth, show a healthy epithelium and do not suffer from the various forms of stomatitis peculiar to early infancy. No matter how carefully the finger is introduced into the mouth for cleansing purposes, nothing but harm can result. A toothless mouth requires no cleansing. Other influences besides infection are at work in the production of carious teeth. Such influences are environment and manner of living. The evidence, however, seems to point toward defective diet as being largely responsible for the wide-spread prevalence of carious teeth. The following are the usual illustrations which point to diet as a causative factor: (i.) Teeth of primitive people in Australia who for many years have lived under civilized or partially civilized conditions, are bad in comparison with those tribes who have continued under primitive conditions. (ii.) Kaffirs supplied with the food of civilization have in one genera-

tion become totally different in regard to caries from those Kaffirs who are still living on their native diet. (iii.) The disease is rare among the red Kaffirs in south-eastern Africa, who have not taken kindly to European conditions and diet. (iv.) The Esquimaux were practically free from caries until change of diet with the influx of refined food. (v.) In Scotland, among those living on the highlands and using coarse foods, caries is rarely seen. The pædiatrist should be aware of the fact that conditions existing during the period from birth until the sixth year, determine the future condition of the teeth. It is not sufficiently recognized that the first years of a child's life are critical ones as far as structure of the permanent teeth is concerned. Teeth and jaws must be made to functionate through mastication. Soft, mushy foods do not exercise the jaws nor stimulate the gums. Food should be hard enough to cause vigorous mastication. Prevention of caries requires certain factors: (i.) The daily intake of food should include substances containing sufficient calcium and phosphorus. (ii.) Vitamins are necessary to utilize these elements. (iii.) The development and proper action of the jaws and teeth depend upon vigorous mastication. (iv.) Foods classed as salivary activators confer the benefits of a copious flow of saliva. A great deal of mineral matter is lost in cooking. After vegetables are boiled, the water containing a quantity of mineral salts is usually discarded. Cereals are ground fine by high milling. Devitalized white bread is used instead of whole meal. It is highly probable that saliva contains a substance to prevent either the onset or the progress of caries. It is interesting to note that saliva of mouths with good teeth contains a higher percentage of calcium than saliva of mouths with dental caries. This may be another means of determining whether or not the body is able to fulfil its calcium requirements. The more saliva that can be stimulated in a natural manner, the more probable it is that there will be sufficient protective agencies. Salivary secretion does not respond in the same way to all foods. For example, dry bread increases the amount of saliva in the ratio of two to one, apples and oranges increase the saliva six to one. Almost all vegetables, cooked or raw, and all fruits stimulate the flow of saliva. Other salivary activators are crusts, hard toast, coarse biscuits and salads. Foods that are known to be poor salivary stimulants include farinaceous foods, white bread, soft biscuits, sweets, chocolate, refined sugar and tasteless food. Meat, fish, eggs, rice and brown bread are indifferent to salivary stimulation. Coarse foods must be made attractive and palatable by expert cooking and combination.

Records of Breast Feeding.

HENRY DIETRICH (*The Journal of the American Medical Association*, July, 1922) analyses a series of one thousand instances of breast feeding seen

in private practice, hospital and welfare records being purposely omitted. He emphasizes the fact that the state of nutrition and general well-being of the infant is dependent on the vigilance and efficiency of the practitioner conducting the confinement. The time and care he dedicates to the establishment, maintenance and correct methods of breast feeding are all important. Whole-hearted cooperation and encouragement on the part of the obstetrician are essential. It was found that three hundred and seventy, or 37%, of these infants were nursed at the breast three months or less; ninety mothers nursed their offspring less than one week. Weaning was allowed in one hundred and thirty-nine nursings before they were four weeks old. The author holds that this does not speak well for the efforts put forth to encourage breast feeding. Undoubtedly a large number of these mothers, if they had had the proper medical and moral support on the part of the obstetrician, could have nursed their offspring. The practice of determining the amount of breast milk by weighing and the use of complementary feedings is too often neglected. The belief that insufficient gain, restlessness, etc., are due to poor quality of milk is still prevalent. Quantity is far more often at fault than quality. The reason for weaning was ascertained in three hundred and thirty-seven of the three hundred and seventy-one instances in which the infants were weaned during the first three months. In almost every instance the physician had been consulted and knew that the child was to be weaned. In a number of instances the reasons were so ludicrous as to appear almost incredible. The author states that if good results are to be obtained, the medical profession must be instructed in the fundamental principles of breast feeding before the public can be reached. Each and every physician must be made an ardent advocate of breast feeding, with the full realization that he will be practising preventive medicine in the supreme sense of the word.

Proprietary Foods and Milks.

EDMUND CAUTLEY (*The Practitioner*, July, 1922) points out that all proprietary foods and milks are more or less altered in composition during preparation. They are no longer fresh foods, but are cooked foods, partly or entirely devitalized. They are deficient in certain inherent qualities of fresh food, notably enzymes and vitamins. It is essential to add an anti-scorbutic vitamin, such as the juice of oranges, lemons, cabbage or swede turnips, to the diet of an infant brought up on a proprietary food. The place of the fat-soluble A or so-called anti-rachitic vitamin is still *sub judice*. No harm results from the addition of fat to the diet of an infant brought up on food lacking this constituent, if the baby is in normal health. Animal fats, such as butter and cod liver oil, are more beneficial than vegetable oils. Cream often disagrees, perhaps on account of the large size of the fat globules or the addition of some preservative.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the B.M.A. Building, 30-34, Elizabeth Street, Sydney, on August 25, 1922, Dr. T. W. LIPSCOMB, the President, in the chair.

Prostatectomy.

DR. S. HARRY HARRIS read a paper entitled "Prostatectomy: A Review of a Recent Series of One Hundred and Forty-Six Cases with Five Deaths" (see page 401).

DR. R. GORDON CRAIG read a paper entitled "Prostatectomy" (see page 408).

DR. JOHN FLYNN thought that the papers reflected great credit on their authors. He said that it might help the better appreciation of the results recorded by Dr. Harris if he gave a few statistics concerning the operative mortality of prostatectomy. Some time ago Wade had given statistics from the clinical records of the Royal Infirmary at Edinburgh. For the period 1902 to 1912 the operative mortality in the hands of the general surgeon was 35.4%; for the period 1910 to 1920 it was 25%. During the same period, of one hundred and ninety-eight patients with severe lesions who were not subjected to operation, fifty-two died, yielding a mortality of 25%. According to Rendle Short, the English hospitals statistics at the present time revealed a death-rate of about 20%. Dobson, of Leeds, in the Arris and Gale Lecture of 1921, stated that, excluding selected cases, complications arose which induced a mortality of from 15% to 25%. Turning to the operative results of the genito-urinary specialist, Young had reported a series of one hundred and forty-six perineal operations with one death; Freyer's latest statistics had given a mortality of 3%, while Thompson Walker had reported 5% in over one hundred cases. Dr. Flynn thought that Dr. Harris's results were difficult to rival and next to impossible to excel.

If they inquired into the source of the marked progress made during the last twenty years in the surgery of the prostate, they would find that, although every system of the prostatic patient required to be overhauled, the renal system needed very special pre-operative care. In connexion with this matter there were three functions of the healthy kidney which should be borne in mind. The first was the regulation of the reaction of the blood, a process of extreme delicacy. The second was the preservation of the normal necessary concentration of salts in the fluids and tissues of the body. The third was the excretion of the waste products of nitrogenous metabolism. Under the first caption he pointed out that the acidity of human urine was mainly due to the presence in it of acid sodium phosphate. Large amounts of acid could be excreted as acid phosphate without the urine becoming more than slightly acid. Just as there was a sharply-defined threshold for sugar and common salt, so there was a well-marked threshold of blood alkalinity. Above this threshold the urine became alkaline; when the alkalinity of the blood fell below the threshold, acid urine was excreted. A kidney with depressed function, as it was in large prostates, was maimed as regards the function of regulating the alkalinity of the blood. The kidney might allow alkali to pass in excess or the renal defect might impede the elimination of the acid sodium phosphate. Its consequent accumulation in the proteins of the blood would be somewhat analogous to the accumulation of urea in the blood from impaired renal functions. This was what was meant by renal acidosis. Acidosis physiologically was diminution below certain limits of the alkalinity of the blood plasma. Clinically acidosis was met in many conditions and was associated with, but not always due to, the presence of acetone bodies. The most common cause was the result of an excess of acid sodium phosphate in the blood. It was the function of the kidney to excrete it and it did so in considerable quantity in normal conditions. In the kidney depression that occurred in connexion with prostatic hypertrophy, the elimination of acid sodium phosphate was inhibited. If the kidneys could not excrete the endogenous acid salt, it would only make matters worse to administer exogenous

acid sodium phosphate. Recent research had shown that this acidosis was relieved by the administration of neutral sodium phosphate, which enabled the kidneys to excrete much more acid, paradoxical as that might seem.

In regard to the preservation of the normal concentration of salts, Dr. Flynn pointed out that the body salts required a fluid containing 0.6% of common salt. Any notable change in this percentage was incompatible with life. The main constituent of the blood was water. Assuming that the blood was already supplied with a sufficient amount of water, if more water were drunk, that water would be promptly excreted by the kidneys. On the other hand, if the body were deprived of water, the body weight would diminish. When water was again taken copiously, the normal weight was restored and when this point was reached any additional water taken was promptly eliminated. There was thus as definite a normal threshold for water as there was for sugar or salt. On these physiological facts the test prescribed by Dr. Craig as seen in his travels had its basis. The normal kidney could rise, as it were, to the occasion and could vary its work according to requirements. The maimed, the impaired or the depressed kidney could not vary its work; it had undergone a sort of fixation of function. There were many methods of applying these facts to clinical work; not the least admirable was that described by Dr. Craig. He pointed out, however, that any test based on the *débit de l'eau* was not infallible. It was well to remember the normal oscillations of the renal secretions. Some observers, including Malcolm Smith, had found that the results of the water excretion tests were not constant. In disease the threshold for water might be lowered. This was thought to occur in *diabetes insipidus*.

In regard to the graduated method of producing decompression, by having a retention catheter connected with an elevated douche can, there was diversity of opinion between Dr. Harris and Dr. Craig. As it was desirable not to rely on any one test and as the ability to gauge aright the impairment of renal function was of more importance than the technical details of the operation, the tests based on the estimation of the products of nitrogenous metabolism had acquired increased interest in recent times. It was remarkable how rapidly the excessive percentage of urea fell after a short period of suprapubic drainage. This seemed to demonstrate that, though there might be a marked effect in renal function in many of the patients, there was very little or no interstitial change. According to Rose-Bradford, an appreciable rise in the urea nitrogen of the blood occurred only when the effective renal tissue was reduced to one-fourth of the total kidney substance. It appeared certain that urea had nothing to do with the production of uræmia. Some toxic substance must therefore appear *pari passu* with the urea retention arising, not from the urea, but from disordered tissue and metabolism. Dr. Flynn suggested that many phenomena had not yet been solved, as a rise in the percentage of the blood urea was correlated very closely with the clinical condition of the patient. Its estimation had been proved to be of considerable practical value. Apart from the retention of urea test, there was the test of excretion which concerned the urine. The urea concentration had been used for years in the form of Ambard's search for the maximum concentration of urea. Briefly, it consisted in placing the patient on a salt-free and highly nitrogenous diet. About the third day the maximum concentration was reached. Maclean had modified this test and had made it more convenient. His test consisted in administering fifteen grammes of urea in one litre of water (approximately 225 grains to three and a half ounces). A concentration of 2% of urea in urine was accepted as evidence of an efficient kidney. The test therefore was a means of guarding against the many conditions that caused fluctuations in the excretion of urea. Dr. Silverton had shown a couple of years ago that when the percentage ranged around 2% a one-stage prostatectomy was not attended with danger on the score of renal function. All the tests of renal function were nothing more than exercises in applied physiology and afforded a striking proof of the need for the new movement in some universities, such as the Sheffield University, of correlating laboratory and clinical work.

DR. R. J. SILVERTON congratulated Dr. Harris on his splendid results. He expressed his concurrence in regard to the superiority of the operation by the suprapubic route. He also agreed with Dr. Harris when he advocated the

use of small incisions. It was very necessary to insure the collapse of the prostatic cavity and to take steps to eliminate the formation of a ledge. He was of opinion that bleeding could be easily controlled by gauze packing. In his opinion Thompson Walker's open operation was too traumatizing, produced too great a shock and was too long. Freyer's operation, he was satisfied, was a better operation. He claimed that he was in a position to judge the relative merits of these two operations, as he had served as house surgeon to both Thompson Walker and Freyer.

Turning to the question of the functional tests, he said that he had been disappointed that no mention had been made of the phenol-sulphone-phthalein test, which he regarded as a better test than the indigo-carmin. Recent researches had shown that the results from the phenol-sulphone-phthalein test coincided very closely with the "Ambard constant" test. He claimed that the phenol-sulphone-phthalein test was simple to apply, much simpler than the water test mentioned by Dr. Craig. A colorimeter was not necessary. The general practitioner could carry it out with ease. Two test tubes of equal calibre were selected, one being graduated into ten equal divisions and the other left ungraduated. A standard solution, denominated as a 100% dye intensity, was made by dissolving one ampoule of phenol-sulphone-phthalein in half a litre of alkalized water. The patient was given an intramuscular injection of one dye ampoule. One hour and ten minutes later the urine was drawn off, the ten minutes being a rough allowance for the time the dye took to apply in the urine. The urine specimen was diluted to half a litre and made alkaline to bring out the colour; it was then poured into the ungraduated tube so as to fill the latter. Standard solution (100%) was then poured into the graduated tube to the height of one division. The latter was diluted, partly with water and partly with urine, until the colours in each tube matched. The percentage of dye excreted in the first hour could thus be easily estimated. Normally the amount was between 40% and 60%; with moderate renal damage it was between 20% and 30% and with severe damage below 20%.

DR. RALPH WORRALL referred to the fact that some prostatists after operation had no loss of sexual power, although the sexual act was unaccompanied by the emission of semen. He suggested that the discharge from the ejaculatory ducts was directed backwards and the semen found its way into the bladder.

DR. HOWARD BULLOCK expressed his thanks to both readers of papers, but especially to Dr. Harris. He remarked that much of the essential knowledge concerning prostatism would not be learnt from text-books. It was very important to ascertain the degree of renal activity, both before and after operative treatment. He paid a tribute to the school of urology which had been instituted by Freyer. While in England he had worked with Freyer and had learned the technique which had made his operation so eminently successful.

DR. J. L. MCKELVEY said that he, too, had noted the absence of semen in certain prostatists after operation without any diminution of sexual desire. In one patient, a man eighty-four years of age, a large area of fat had sloughed and there had been delay in the closure of the wound. Later on the wound had again broken down. It had been ascertained that the cause of this unsatisfactory healing had been indulgence in sexual intercourse by this elderly patient. In regard to the formation of a diaphragm or ledge bounding the communication between the bladder and the cavity after the removal of the prostate, he agreed with Dr. Harris that it was necessary to take steps at an early stage either to prevent this or to remedy it.

DR. ARCHIE ASPINALL congratulated Dr. Harris on his admirable paper. He was satisfied that prostatectomy was not an easy operation and that experience was a large factor in obtaining good results. He was satisfied that Dr. Harris's treatment was sound, more particularly in regard to the glass tube drainage. He referred to a patient with prostatic enlargement who had suffered tenesmus on defecation and difficulty of micturition. Urination was followed by excruciating pain. The motions were "pipe-stemmed," suggestive of malignant disease of the bowel. He had been examined three times with the aid of X-rays for stone, but no shadow had been seen. On opening the bladder he had found a stone shaped like a sea urchin with many sharp spicules and an enlarged

middle lobe of the prostate. The stone and the prostate had been removed at the same time. The patient had been discharged in seventeen days and the recovery had been complete.

DR. P. FIASCHI, O.B.E., said that Dr. Craig had hit the nail on the head in regard to necrosis of the wound margin following drainage by rubber tubes, through the incision being closed too tightly around the tube. It should be remembered that two strong teeth could be separated by a small piece of rubber dam to such an extent as to enable the dental surgeon to excavate and fill approximal cavities and it could readily be appreciated what a large, thick drainage tube could do when thoroughly wet.

Dr. Fiaschi showed some models of Duchastret's modification of Freyer's drainage tube for suprapubic cystostomy which, if attached to some simple siphon apparatus, such as that of Dawborn, would insure for the patient a dry bed and would render the irrigation of the bladder through the top of the tube a simple matter.

DR. S. HARRY HARRIS, in his reply, thanked Dr. Flynn for the information he had given concerning the failure of action of acid sodium phosphate. The explanation appeared to him to be reasonable. In regard to the retrograde passage of semen during coitus, he stated that this was not uncommon and was due to injury to the internal sphincter of the bladder during enucleation. This was a harmless phenomenon, the semen being discharged with the urine at the next micturition. He dealt briefly with the question of the arrest of hæmorrhage. Thompson Walker had found that, even with his open operation, subsequent plugging of the prostatic cavity was necessary in the cases of serious hæmorrhage. The bleeding points could not be seen in many of these cases.

DR. GORDON CRAIG claimed that the open operation was, in his opinion, the ideal operation for patients who were "good risks." In performing the closed operation the surgeon frequently removed the terminal parts of the ejaculatory ducts, with the result that the semen was later emitted in the direction of the bladder, if it were emitted at all. In the open operation the ejaculatory ducts could be saved. He wished to offer his congratulations to Dr. Harris on his admirable results.

Emergency Surgery.

DR. J. L. MCKELVEY read a paper entitled "Some Surgical Cases" (see page 411).

DR. RALPH WORRALL regarded Dr. McKelvey's paper as highly instructive. In dealing with some of the conditions described by Dr. McKelvey, Dr. Worrall found that it was very necessary to remove a wide margin of apparently healthy bowel when resecting gangrenous bowel. He referred to an operation which he had performed one night at a private hospital at Sydney. He had removed about seven and a half centimetres (three inches) of apparently healthy bowel at each end of the gangrenous portion. He had divided the distal end first and had then brought the gangrenous loop outside the peritoneal cavity, so as to empty the distended bowel above the constriction. In this way the suturing became much easier and safer. His patient had made a good recovery.

DR. HOWARD BULLOCK regarded Dr. McKelvey's cases as very interesting and very difficult. He referred to some instances in which intense headache had been a prominent sign when the patient regained consciousness after head trauma. In those cases in which lumbar puncture did not ease the headache, sub-temporal decompression had been carried out with great relief and small hæmorrhages from the vessels in the *pia mater* had been discovered. He was of opinion that the hæmorrhages might have increased and produced a condition similar to that described by Dr. McKelvey. Dr. Bullock said that he had seen the patient with typhoid perforation described by Dr. McKelvey before operation. He certainly had appeared to be *in extremis*. Dr. McKelvey was to be congratulated on the result. He thought that Dr. McKelvey's paper gave them an excellent opportunity of learning how a skilled casualty surgeon worked and overcame his difficulties.

DR. ARCHIE ASPINALL recorded the details of a patient who had been kicked by a draught horse on the abdomen while in a stooping position. When admitted at the Sydney Hospital forty-eight hours after the accident the patient was suffering from shock, but no other symptoms. The pulse rate was 152, the temperature 35.4° C. (95.8° F.) and

the respiration rate 40. He was conscious and did not complain of pain. There was tenderness over the region of the appendix, but no definite rigidity elsewhere. Later the patient had vomited a considerable quantity of bile-stained fluid. This patient, who was *in extremis*, was not submitted to operation. He had died two and a half days after the accident. At the autopsy it had been discovered that the duodenum had been completely torn across in its third part and faecal matter had been present in the retro-peritoneal tissues.

DR. T. W. LIPSCOMB offered his thanks to all three readers of papers. He expressed the opinion that Dr. McKelvey's paper would create some alarm in the minds of the younger casualty surgeons in view of the very difficult problems they might be called upon to meet in emergencies. There was no question that the casualty surgeon had a very difficult task to perform.

In his reply, DR. MCKELVEY said that every casualty surgeon had to be prepared to exercise his own judgement rather than to mould his treatment on the ordinary teaching of surgery.

A MEETING of the Victorian Branch of the British Medical Association was held on September 6, 1922, at St. Vincent's Hospital, Melbourne. A large amount of instructive clinical and pathological material was assembled and demonstrations were conducted by the members of the staff of the hospital.

Syphilis of the Central Nervous System.

DR. L. S. LATHAM demonstrated the clinical features of a group of patients exhibiting lesions of the central nervous system and handed round charts on which the neurological findings in the several patients were recorded.

(i.) A man, aged forty-six years, was shown as presenting clinical evidence of cerebro-spinal syphilis. The history of his condition dated from July, 1920, when he had sought advice on account of weakness in the right lower limb, giddiness, staggering and emotionalism which took the form of uncontrollable crying fits. Systematic investigation of the nervous system at that time had revealed an exaggerated activity in the tendon reflexes at the right knee and ankle joints, associated with a slight patellar clonus and an extensor plantar reflex on the right side. At this time the blood serum had reacted to the Wassermann test.

Two years later, in August, 1922, the man had come under observation again. He had considered that he had become worse in the interval. He was then staggering very badly. It was found that the plantar reflex was of the extensor type on both sides, but no impairment of sensation in respect to pain, heat and cold, joint, muscle and vibratory sense could be detected. Inequality in size of the pupils had been noted.

The patient had contracted a chancre twenty years previously and had admitted heavy indulgence in alcohol. For the past four years he had been incapable of an erection of the penis. He had suffered some disability in the act of urination and generally was unable to pass urine when he first felt the desire. When the bladder reached a certain degree of distension, pain, starting in each big toe, had shot up to the penis and he had then been able to empty the bladder, although micturition had been attended by some precipitancy.

Recent investigation of the blood and cerebro-spinal fluid in this patient by the Wassermann test had resulted in a positive finding in each instance.

(ii.) A man, aged thirty-seven years, had sought advice after having suffered pain in the left side, left hip joint and in the anterior aspect of the left leg for three weeks. He had also noticed that he was losing power in the left leg. On examination muscular hypotonia, wasting and paresis had been apparent in the left lower limb, the left patellar reflex had been absent and the *tendo Achilles* reflex, though present, had been very weak. No impairment of sensation of any kind had been detected. The degree of paresis of the left lower extremity had been indicated by the observations that the patient had slight power of flexion of the toes and of the foot at the ankle joint. He was unable to carry out dorsal-flexion of the foot and could not flex the thigh at the hip joint, though he could exert slight resistance to forcible abduction at the left hip joint.

The blood and cerebro-spinal fluid yielded a reaction to the Wassermann test. The Noguchi test for globulin in the cerebro-spinal fluid resulted in a reaction; the fluid contained two hundred and thirty leucocytes per cubic millimetre, the majority of which were small lymphocytes. This patient was showing great improvement under anti-syphilitic treatment.

(iii.) Dr. Latham presented the third patient with the provisional diagnosis of an early stage of general paralysis. He was a man, aged thirty-seven years, who in 1915 had gone to Egypt on active service and who eventually had suffered some very trying war experiences. He returned in 1919 and about twelve months later his right hand had become tremulous and he had noticed a loss of power and weakness of grip. For the past twelve months he had been unable to concentrate on any work and his speech was of a very pronounced "slurring" character. Ataxia was manifest in his gait and fibrillary twitchings of the facial muscles might be observed.

Laboratory examination of the cerebro-spinal fluid showed that lymphocytes were present (forty per cubic millimetre), that the amount of albumin was 0.56 gramme per litre and that globulin was excessive (Noguchi test). The blood serum and the cerebro-spinal fluid gave a complement fixation Wassermann reaction.

Encephalitis Lethargica.

In the fourth patient Dr. Latham had made the diagnosis of *encephalitis lethargica*. He was a man of twenty-seven years of age. A little more than two months ago he had contracted a febrile illness of influenzal character. After recovery double vision, headache and drowsiness had manifested themselves and had been accompanied by nocturnal restlessness and delirium. The temperature had remained at 38° C. for three weeks and had then gradually subsided.

The patient had remained in a typhoidal state for six weeks, at the end of which time he had begun to take some interest in his surroundings. His appetite had increased and he had been improving until three weeks previously, when he had complained of a return of headache, had become apathetic and gradually had developed the Parkinsonian appearance which he was seen to exhibit. In his present state he was restless at night and sat with head forward and eyes half closed. Although eating well, he was losing weight rapidly.

Crossed Hemiplegia.

DR. LATHAM also demonstrated the neurological findings in an interesting example of crossed hemiplegia furnished by a man of thirty-one years.

Dextro-Cardia.

DR. H. J. WILLIAMS, D.S.O., showed two patients with dextro-cardia. In the first patient the cardiac displacement was part of a general transposition of viscera as judged by the facts that the liver was on the left side and the appendix had been sought in the left iliac fossa and removed. The cardiac displacement in the second instance was due to the traction to the right of adhesions consequent on a former pleurisy.

Frölich Type of Dyspituitarism.

DR. G. P. O'DAY exhibited a boy, aged eight years, whom he regarded as illustrative of the Frölich type of dyspituitarism. The child was very obese and weighed sixty kilograms; his height was one hundred and forty-one centimetres and his chest measurement eighty centimetres. The normal weight, height and chest measurement of a child of eight years could be taken as twenty-five kilograms, one hundred and twenty centimetres and sixty centimetres respectively. By radiographic examination a small pituitary fossa had been demonstrated, but no other abnormality had been detected in the boy.

Hypo-Pituitarism.

DR. F. COLOHAN demonstrated an instance of hypopituitarism in a child of eight and a half years whom he had had under treatment for two months. At the outset of treatment her height had been eighty-five centimetres. He had administered 0.12 gramme (two grains) of pituitary gland extract twice a day together with 0.06 gramme (one grain) of thyroid extract once daily. In two months the

child had grown 3.75 centimetres, whereas prior to the institution of medical treatment her maximum rate of growth had been 0.6 centimetre in twelve months. She had formerly shown a rough, coarse skin and thick, flabby tongue, but under treatment had improved in these respects.

Cardiac Lesions.

DR. F. E. McAREE detailed the clinical features and demonstrated the physical signs in a number of patients with interesting cardiac lesions.

DR. SYDNEY PERN presented a female patient, aged fifty years, as illustrating the beneficial effect of the eradication of a focal infection. The woman came under his observation eighteen months previously manifesting auricular fibrillation and cardiac failure. She was found to have an infected antral sinus and by inquiry it was ascertained that she had recently lost much in weight. After the institution of measures directed against the sinusitis the patient gained 12.5 kilograms in weight and her cardiac condition improved considerably. The pulse rate had become eighty per minute and the heart beat was quite regular. She had had no medicine for several months.

Septic Tonsillitis.

DR. PERN's second patient was a man, aged twenty-two years, the subject of fits for ten years. No Wassermann reaction had been obtained with the blood serum. Tonsillectomy had been advised and carried out on account of the septic condition of the man's tonsils and he had suffered no fits since the operation. No drugs had been administered since May 16, 1922.

Syphilitic Arthritis.

DR. PERN also showed a woman, aged forty-five, who eighteen months previously, had first suffered painful swellings under the skin of the feet. Two months before larger painful swellings had appeared over the left sterno-clavicular joint, over the right scapula and over the dorsum of the right foot. On August 1, 1922, the teeth had been extracted on account of an existing bad pyorrhœa, while during the week immediately preceding the meeting the temperature had been slightly elevated. The patient's blood had been sent for examination; a Wassermann reaction had been obtained.

Goutre and Diabetes Insipidus.

DR. PERN's last patient exhibited a combination of goutre with *diabetes insipidus*. Her average pulse rate was formerly 128 per minute. On account of *pyorrhœa alveolaris* he had recommended extraction of the teeth and following this measure the pulse rate had steadied to an average rate of 96 per minute. The goutre also had diminished in size. The urine had a specific gravity of 1,000 and contained no albumin, sugar nor pathological cell constituents.

Laryngeal Papilloma.

DR. JOHN MURPHY demonstrated the presence of a laryngeal papilloma in a young woman. He proposed to remove the growth by the aid of direct laryngoscopy.

Sub-Dural Abscess.

He also exhibited a patient in whom chronic suppurative *otitis media* and otorrhœa of fourteen years' duration had culminated in a sub-dural abscess. Eight weeks previously he had performed a radical mastoid operation and had drained the collection of pus under the *dura mater*.

Empyema of the Frontal Sinus.

In a third patient an empyema of the frontal sinus associated with a myxomatous development of the mucous membrane had been dealt with by the radical Killian's operation.

Branchial Fistula.

DR. MURPHY's fourth patient was a young man who afforded an example of a branchial fistula.

Paralytic Ptosis.

DR. EDWARD RYAN showed five examples of paralytic ptosis. Three of the patients had been treated by a modification of Möbius's method and in the other two by an

operation in which the lid was fixed by two muscle and skin flaps drawn up beneath the skin of the upper lid and stitched at the eyebrow. The results in every case were strikingly good.

Rodent Ulcer.

Two patients in whom eventration of the orbit on account of intractable rodent ulcer had been performed, were also exhibited; both had had long periods of treatment by radium and X-rays. In another instance in which the rodent ulcer had relapsed on two different occasions after the application of radium, the growth had been excised widely and a thick pedunculated skin flap from the forehead covered the site well.

Melanotic Sarcoma.

An eye removed by Dr. Ryan on account of the presence of a melanotic sarcoma was demonstrated by Dr. Andrew Brennan. Dr. Ryan pointed out as an interesting fact that the tension of the eye by the tonometer just before removal had been only seven millimetres of mercury, although the growth had occupied about one-fourth of the bulk of the eye and had been situated well forward in the drainage area.

Dermatoses.

DR. KEITH COLQUHOUN demonstrated on behalf of Dr. HERMAN LAWRENCE a number of interesting dermatological conditions. Included in the series were two examples of *tinea capitis*. These occurred in sisters and in the elder, aged sixteen years, the condition simulated *pitiriasis capitis*.

Atypical instances of keloid and rhinophyma were also presented and an unusual case in which the patient presented four separate lesions of *tuberculosis cutis verrucosa*.

Among a number of the more common types of skin diseases was a purpura-like dermatosis, punctate and macular, the several lesions leaving a residuum of pigment, which affected both legs of a girl aged eighteen years. The lesions were of four years' duration.

Dr. Colquhoun also exhibited several examples of rodent ulcer and keratosis.

Electro-Medical Apparatus.

DR. J. F. NELLY demonstrated a comprehensive set of electro-medical apparatus.

Radio-Therapy in Malignant Disease.

DR. D. MURRAY MORTON's first group of patients were shown to illustrate the results obtained by radio-therapy combined with plastic operation for malignant disease of the face.

The first patient had come under observation on June 28, 1916, and had presented a sloughing epithelioma of the left lower lip. He had been given radium treatment for six months, but no conspicuous improvement had been noted. An operation had been undertaken on July 12, 1916, and had comprised a dissection of the neck, excision of the lip and repair by sliding the cheek over to the middle line.

The second patient, a married woman, had first sought advice on April 7, 1921. She had been found to have an epithelioma of the nose which after eight months' persistence in radium treatment had been aggravated rather than improved. The growth had then been of the size of a florin and had exhibited much induration. Operation had been suggested, but not urged very strongly as the prognosis had not appeared to be encouraging. The surgical measures adopted had been divided into two stages and had been carried out on April 20, 1921, and May 2, 1921. The details of the operations were demonstrated by Dr. Morton on the blackboard.

The third patient had suffered from a supposed lupus of the right malar region for years. He had undergone prolonged treatment by X-rays and radium and curettage of the affected area had been twice performed. He presented a square-shaped ulcer which exposed bare bone and possessed slightly indurated edges and a "wash-leather" base. The pathological report was to the effect that the tissue excised was that of a basal-celled carcinoma (rodent ulcer).

Dr. Murray Morton detailed the steps of the operation, which he had carried out in three stages.

Treatment of Fracture.

Dr. MORTON's second group of patients comprised a series of fractures which he had treated by open operation.

In the first instance an ununited fracture of the humerus had been the aftermath of a compound fracture sustained five months previously. Operation had been performed on August 24, 1916, and had consisted in the insertion of an intramedullary bone graft from the tibia and the application of a Lane's splint.

The second patient, a jockey, aged seventeen years, had incurred a fracture of both bones of the right leg on July 10, 1922. Attempts at reduction under anaesthesia had been unsuccessful. On July 12 an open operation had been performed and a plate apposed to the lateral aspect of the tibia. Twelve days later the limb had been put in plaster and on August 1 the plaster had been cut and massage instituted. A skiagram taken on September 4, 1922, was exhibited.

A man, aged sixty, had fallen in the street and had struck the kerbstone with the point of his shoulder three weeks before his admission to St. Vincent's Hospital on July 29, 1922. The arm had been immobile since the accident and a skiagram had shown a fracture of the surgical neck of the humerus and of the shaft.

At operation on August 1, 1922, the head of the humerus had been found in its normal position in the glenoid fossa, but the upper fragment had been abducted. There had been a transverse fracture of the surgical neck and the lower fragment had been driven upwards and inwards with much overlapping. Approximately five centimetres of the lower fragment on its medial surface had been avulsed. A medullary peg, 7.5 centimetres in length and taken from the right fibula, had been inserted, the fragment torn from the shaft of the humerus had been replaced and secured in position by four strands of thick catgut. Finally, a Lane's plate had been placed over the lateral aspect of the bone. The arm had been immobilized in abduction and a week later had been placed in plaster. Massage had been instituted on September 1, 1922. Skiagrams of the injury before and after operation were exhibited.

Exophthalmic Goitre.

Mr. H. B. DEVINE presented twelve patients upon whom he had operated for the relief of severe thyrotoxic symptoms in exophthalmic goitre. He showed the series to illustrate the almost uniformly satisfactory results attending the surgical treatment of exophthalmic goitre. The patients selected for demonstration represented the worst forms of Graves's disease; the majority had formerly suffered extreme tachycardia. There was a remarkable difference in the health of the women as compared with their state before operation. In the majority of instances the right lobe, isthmus and two-thirds of the left lobe had been removed. In some instances this had been carried out at one sitting under local anaesthesia, while in others the first lobe had been removed under local anaesthesia, the second lobe being dealt with a fortnight later by a second operation under general anaesthesia. In others the right lobe and isthmus had been removed at the first sitting under general anaesthesia and then two-thirds of the left lobe had been removed at a second operation ten days later.

Some patients who had had severe symptoms were apparently well several years after one lobe only had been excised. The improvement in the exophthalmos had in the majority of instances been very great, but in some this was not entirely abolished. In the majority also the cardiac and nervous symptoms were almost completely eliminated. The patients chosen for demonstration were asked to attend because they lived in Melbourne and were accessible; they might therefore be regarded as illustrating the average result.

Speaking from memory, Mr. Devine said that he had experienced a mortality of under or about 1% in a series of between three and four hundred goitre patients whom he had treated by surgical measures. The series was comprised not entirely of exophthalmic goitres, but included some of the simple type of goitre.

Deep X-Ray Therapy in Malignant Disease.

Mr. DEVINE also exhibited a number of other patients presenting clinical features of interest from a surgical point of view and several radiograms and pathological

specimens. Included among the former was a woman, aged thirty-eight, in whom was demonstrated the rapid response of a sarcoma involving the humerus to deep X-ray therapy. Within a fortnight of a single application by Dr. H. Flecker almost complete recession of the growth had occurred. According to the history given the tumour had been present for six months and a skiagram showed that the greater part of the humerus had been affected. The pathological report was to the effect that the tumour was composed of small round and spindle cells in a fibrous reticulum. Prior to irradiation on July 27, 1922, the arm and shoulder had been much swollen and the shoulder and elbow joints stiff and useless. The movements in these joints were now almost completely restored and the swelling had completely disappeared.

Endothelioma of the Ankle-Joint.

Mr. DEVINE further presented a man, aged thirty, whose ankle had commenced to swell about fifteen months prior to his first examination. The view he had at first taken was that the pathological process was probably a chronic infective arthritis dependent on co-existing *pyorrhea alveolaris*. The patient had been quite unable to walk and eventually the diagnosis had been modified in favour of a tuberculous affection of the ankle-joint. From the skiagram exhibited the tuberculous nature of the lesion seemed extremely probable and a swollen cervical gland was also regarded as probably tuberculous.

Ultimately excision of the joint was performed and pathological investigation disclosed that the patient's disability was due to the presence of an endothelioma in the vicinity of the ankle joint. The skiagram and specimen of the joint were exhibited. The chief point of interest about the condition was stated to be its clinical and radiological resemblance to tuberculous arthritis.

Carcinoma of the Rectum.

A patient who had undergone a radical operation by Mr. Devine for carcinoma of the rectum was also shown and the steps of the operation detailed. The operation had been performed five and a half years previously and the patient had remained in good health and free from recurrence.

Pernicious Anaemia.

A specimen which provoked some interesting discussion was that of a spleen removed by Mr. Devine from a patient affected with pernicious anaemia.

Intrathoracic Goitre.

Great interest was excited by a specimen of an enormous intrathoracic goitre removed on September 4, 1922. The patient had complained of dyspnoea for years and under exertion had changed colour and had almost fainted. The cardiac condition had been regarded as of thyrotoxic origin, but there had been no other symptoms of hyperthyroidism. Clinically a slight enlargement of the thyroid gland had been apparent on the left side, but no enlargement of the right lobe had been detected. By radiographic examination it had been evident that the thyroid gland was enormously enlarged and could be seen to extend downwards into the thorax for a distance of eight to ten centimetres below the clavicle, at which point it had appeared to press on the large veins as they entered the base of the heart. There had been very little, if any, obstruction to respiration.

At operation a very large intrathoracic goitre had been removed. Only two centimetres of the right lobe had appeared above the clavicle and about five centimetres of the left lobe. The symptoms had apparently been due to the pressure on the veins entering the heart rather than to pressure on the trachea.

An Oesophageal Tumour.

Mr. JULIAN SMITH presented a youth in whom he had made the diagnosis of oesophageal diverticulum. Six months previously a small swelling had appeared in the left side of the neck just below the angle of the mandible. The swelling had gradually increased in size and six weeks before the patient's admission to hospital dyspnoea which had become urgent, had commenced. There had been no difficulty in swallowing and regurgitation of food had not

been observed at the time of admission.

Operation had been performed on July 27, 1922, and the patient had been discharged on August 1, 1922. The patient had been in good health and free from recurrence.

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Mr. J. B. Devine presented a patient who had undergone a radical operation by Mr. Devine for carcinoma of the rectum was also shown and the steps of the operation detailed. The operation had been performed five and a half years previously and the patient had remained in good health and free from recurrence.

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been observed. The swelling in the neck had not been tender and to clinical examination had appeared to be continuous with the left lobe of the thyroid gland.

Operation had been undertaken on June 23, 1922. Difficulty had attended the administration of the anæsthetic, as during the induction by ether the patient's airway had become completely blocked. The introduction of the intra-tracheal catheter, however, had rendered it practicable to proceed and by a "collar" incision a large, firm, fibrous mass adherent to the left lobe of the thyroid gland had been exposed. The trachea had been found displaced to the right side; the mass had communicated with the œsophagus, in which structure a small opening had been made. After removal of the tumour and left lobe of the thyroid gland the œsophagus had been closed with catgut sutures and the space drained with the finger of a rubber glove. Gastrostomy had been performed as the final step of the operation.

In the pathological report the specimen was described as possessing a fibrous tissue wall infiltrated with round cells and an inner broad layer of inflammatory tissue packed with round cells. Scattered throughout these cells were large cells with deeply staining nuclei, possibly degenerating endothelial cells.

It could not be said with certainty that the specimen represented a diverticulum of the œsophagus and the suggestion was made that it was possibly a gland adherent to the gullet.

The result of the Wassermann test applied to the patient's blood serum was returned as "good partial."

Rodent Ulcer.

MR. JULIAN SMITH's second patient afforded an example of the steady progression of a rodent ulcer in spite of the fact that it had been under observation and treatment since 1914. In 1905 a small pimple had appeared on the left side of the man's nose, but for some years it had given him no trouble. Treatment by carbon dioxide snow and radium had been instituted in 1914 and during 1916-1917, when in England, the patient had been given a course of irradiation. Radium therapy had been continued at intervals during 1918 and in 1921 further applications of carbon dioxide snow and radium had been made at the Melbourne Hospital. He had been submitted to operation on July 7, 1922, when it had been found necessary to remove the right nasal bone, the left half of the nose and the whole anterior wall of the left maxillary antrum. The structures named had been removed *en bloc* after cauterization of the surface.

Epithelioma of the Face.

MR. JULIAN SMITH showed a man, aged fifty-eight, who twenty-eight months before admission to hospital had noticed a small ulcer on the left cheek. Radium therapy had been ineffective and ten months later it had been deemed advisable to excise the ulcer and anterior wall of the maxillary antrum. The wound had healed well and it was hoped that a cure had been effected.

After the lapse of eighteen months the area formerly affected had ulcerated rapidly and the patient had reappeared, presenting a large crateriform ulcer of the left maxilla involving the antrum and lower eyelid. There had been no palpable glands and nasal discharge had not been present.

At operation on June 2, 1922, the external carotid artery had been ligated as a preliminary step. This had been followed by excision of the left lateral wall of the nose and of the left eye. The maxilla had been levered out after all its bony attachments had been severed by means of saw or chisel and the ethmoid cells on the left side had been chiselled away. The mucosa of the palate had been left intact; a gland had been removed for examination and the cavity packed with iodoform gauze and vaseline.

The excised gland had been examined and found to be in a condition of hyperplasia, with an increase in the number of follicles, but there was no evidence of any malignant process.

Gastric Surgery.

DR. J. FORBES MACKENZIE exhibited three patients whose disabilities had necessitated gastric surgery.

In the first (Mrs. C.) the history and X-ray findings had

in all respects been typical of gastric ulcer. At operation it had been found that thickening of the greater curvature of the stomach extended very far to the left. The extensive removal required could not have been effected without the aid of Polyá's method, as closure of the stomach remnant would have left no room for the performance of ordinary gastro-enterostomy. The specimen was shown and it was pointed out by Dr. Mackenzie that, although the appearances from within were those of a simple ulcer, the presence of a very large gland on the greater curvature and a great many other glands on the greater and lesser curvatures, told a different story.

The history given by Mrs. N., the second patient, was suggestive of visceropotosis. The radiographer's report described a very large, non-emptying stomach exhibiting spasm about the inside section. Operation had been carried out and had disclosed pyloric stenosis due to the scarring of an old healed ulcer; the pylorus had been of the size of a large vermiform appendix. A large indurated mass on the lesser curvature and a number of enlarged glands had been associated with a crateriform ulcer as viewed from within. The pathologist had been unable to find any evidence of malignant disease. The only effective method of dealing with the condition, however, had been by extensive removal.

Hypertrophic pyloric stenosis in a man of fifty-two years was exemplified in the third patient, who for nine years had suffered abdominal pain shortly after meals. The pain had been of burning character and had attained its maximum severity in the region of the umbilicus. There had been vomiting of large quantities of clear fluid without relation to meals and the vomiting had usually relieved the other symptoms for a time. There had been a steady loss of weight during two years. At operation the pylorus had been found to be thickened and definitely stenosed. The pathologist's report was that the mucous membrane had been intact, but the musculature of the pylorus had been greatly hypertrophied.

Acute Osteo-Myelitis.

DR. J. FORBES MACKENZIE showed a boy with deformity following acute osteo-myelitis. The boy had become desperately ill with extensive osteo-myelitis of the right femur and left tibia. On account of his general misery and extreme illness all attempts at maintaining position of the right limb had been abandoned. Spontaneous fracture had occurred in the shaft of the femur just below the great trochanter. For some time no attempt at reparative bone formation had been noticed.

Surgical Devices.

DR. MACKENZIE also demonstrated from drawings (i.) a simple method of controlling hæmorrhage in a loose-walled cavity, (ii.) a method of suture of fragile peritoneum, (iii.) an effective incision for carbuncle. With reference to the last mentioned, Dr. Mackenzie emphasized the point that the incision should penetrate the deep fascia. The essential feature in carbuncle was a sub-fascial necrosis and the surface indications were but the manifestations of the volcano beneath.

Septic Arthritis.

DR. C. GORDON SHAW discussed clinical points in connexion with septic arthritis as exemplified by several patients. Perhaps the most interesting of these was a boy, aged seven years, in whom a pyogenic inflammation of the tissues round the knee joint had occurred eighteen months previously. Treatment had consisted chiefly of multiple incisions, but at the time there had been no convincing evidence that the knee joint was involved. The boy had recovered after an illness of eight weeks' duration. There had supervened a gradually progressive contracture which eventually had brought about a flexion of 90° in the knee joint. This had been overcome by the steady pressure exerted by binding the limb to a back splint and the leg had become almost straight. There were certain appearances of erosion in the skiagram which indicated that the joint had been infected and the contracture pointed in the same direction. If infection of the joint proper had occurred, recovery had been spontaneous, for there had been no incision into the capsule of the joint. It was prob-

able that flexion would recur unless measures were taken to forestall it and with this object it was proposed to maintain the knee joint in extension for several months.

The ultimate range of movement in the joint was problematical, but it was hoped that the boy's power of movement would not be altogether lost.

Multiple Fractures of the Metacarpal Bones.

Dr. H. BUSH described the measures he had adopted in treating a very severe injury to the hand of a male patient. The hand had been crushed on February 2, 1922, and at first had been treated by the use of an ordinary hand splint. On March 3, 1922, a racquet splint with finger extension had been substituted and a radiogram taken immediately afterwards had shown that the overlapping of the fragments of the fractured metacarpal bones had been overcome. The racquet splint had been removed on April 17 and the obvious malposition had re-appeared at once, as was confirmed by the radiogram of April 21, 1922.

Various manipulations had been tried until June 9, 1922, when a bed in the hospital had been secured and open operation with positive fixation of the fragments had been performed. The bones had been found to be very thin and atrophied, providing but poor support for the sutures, but union had taken place. As usual, the great difficulty had been with the metacarpo-phalangeal joints, the free movements of which had been difficult to maintain.

Dr. Bush exhibited the various radiograms and remarked that his object in introducing this patient was to illustrate the difficulty in dealing with multiple fractures of the metacarpals and to raise the question whether it would not be better to operate at once on account of the great number of small structures that were liable to interpose themselves between the ends of the fractured bones.

Traumatic Myositis Ossificans.

Dr. LEO DOYLE presented a young woman who five months previously had fallen from a cab and had sustained an injury to her elbow. There had been much pain and swelling at the time, but no fracture had been detected by radiographic examination. When seen on July 18, 1922, the patient had been unable to flex the affected elbow joint and a further radiogram had disclosed a bony spicule running upwards from the coronoid process in the substance of the *brachialis anticus* muscle.

Milroy's Disease.

Dr. DOYLE described his second patient as presenting features of Milroy's disease. He was a youth, aged sixteen, whose right leg had commenced to swell three years previously. At first the leg had felt sore and he had complained of pain in the groin. Three weeks later the left leg had commenced to swell. The left testis had been noticed to be swollen in March, 1921. The swelling had not extended above the knees and in June, 1922, the feet "burst," but subsequently healed in hospital. The man had suffered no dyspnoea nor palpitation. He had not been out of Victoria.

On examination enormous swelling of both feet and of the legs up to the level of the knee had been determined. The left inguinal glands had been much enlarged, as had been those of the right side to a less degree. There had been swelling of the left testis and epididymis, but this had not been associated with any pain. Efforts to detect filariæ had been unsuccessful and there were no special features observed in the general blood examination, though it had been noted that the eosinophiles comprised 4% of the total leucocytes.

The blood serum had not reacted to the Wassermann test.

Talipes.

Dr. J. NEWMAN MORRIS showed a boy, aged seven years, with *talipes equino-varus* in the right foot. This had been corrected by lengthening the *tendo Achilles*, by dividing the plantar fascia and by manipulation. The foot had afterwards been maintained in position in plaster for a period of two months.

A girl, aged seven, had presented herself at St. Vincent's Hospital on June 17, 1920, complaining of pain in both

thighs. It had been found that she had a congenital *talipes equinus*. The deformity had become much worse during the immediately preceding months. Examination had shown some wasting of the muscles of the left leg and 0.7 centimetre of shortening of the limb on that side. On June 21, 1920, subcutaneous tenotomy of the *tendo Achilles* and division of the plantar fascia had been performed. The foot had then been placed in plaster for two months in the over-corrected position of dorsi-flexion.

Dr. Newman Morris also showed a boy, aged fourteen years, who had been first seen on November 17, 1921, on account of *talipes equino-varus* in the left foot. The right foot had been operated upon in infancy at the Children's Hospital. Operation for the left foot had been undertaken on February 24, 1922, and had consisted of lengthening of the *tendo Achilles* and division of the plantar fascia. In addition, the tendon of the *tibialis anticus* had been divided at its insertion, but as it had been found to be short, it had been united to the *extensor longus hallucis* tendon. The latter had then been divided, carried through the sheath of the *extensor longus digitorum* and inserted into the cuboid bone.

Dr. Newman Morris then presented a girl, aged eight years, who had contracted infantile paralysis at the age of five months. She had commenced to walk at the age of eleven months, when the left foot had been noticed to be turned. Examination had shown the left foot in *equino-varus* deformity. Operation, carried out on August 6, 1921, had consisted in lengthening the *Achilles* tendon, in dividing the plantar fascia and tendon of the *flexor longus hallucis*, in transplanting the *tibialis anticus* tendon through the sheath of the *extensor communis digitorum* and in its insertion into the cuboid bone (Blesalski Mayer method). After the operation the foot had been encased for two months in plaster; the child could walk, skip, run and jump at the time of the meeting.

Plumbism.

Dr. MORRIS also exhibited two patients affected with plumbism. The first, a coach painter, had been suspected of appendicitis. He had evidenced abdominal pain, constipation, pallor and a blue line in the gums. No basophilic stippling of the red cells had been observed in an examination of the blood film, but the urine had been shown to contain 1.2 milligrammes of lead per litre.

The second man had worked for seven months at tile glazing and had complained of abdominal pain, constipation and weakness. A faint blue line had been present in the gums, but no stippled red cells had been found in the blood film. In this instance also lead had been shown to be present in the urine.

The estimations of lead present in the urine of these two patients had been carried out by Mr. G. Ampt, B.Sc., of the Chemical Laboratories, Melbourne University. Details of the technique followed were supplied by Mr. Ampt to Dr. Morris, who made them available to members interested in the analysis of the urine from the standpoint of lead poisoning.

Sarcoma of the Labium Majus.

Dr. E. A. SPOWERS exhibited a sarcomatous tumour removed from the left *labium majus* of a woman, aged fifty-two. The total duration of the growth was six months. Three months previously operative removal had been undertaken in the country, but the tumour had recurred within two months. He had recently operated and had removed the recurrent tumour along with a mass of inguinal glands. As a supplementary measure, radium had been applied for twenty-four hours.

Gynæcological Conditions.

In the gynæcological section, Dr. T. MURPHY showed a patient in whom carcinoma of the uterus had apparently been arrested by radium. Dr. Murphy also demonstrated from a variety of gynæcological conditions.

Dr. ALLORMAN McARTHUR dealt with the subject of malignant disease of the uterus and Dr. R. F. O'SULLIVAN discussed vaginal hysterectomy for *prolapsus uteri*.

MEDICO-POLITICAL.

A MEETING of the Queensland Branch of the British Medical Association was held at the B.M.A. Building, Adelaide Street, Brisbane, on September 26, 1922, Dr. G. P. DIXON, C.B.E., the President, in the chair.

Extension of the Printing Arrangements of the Australasian Medical Publishing Company, Limited.

THE PRESIDENT stated that the meeting had been convened for the consideration of a report issued by the Australasian Medical Publishing Company, Limited, on proposals to extend the printing arrangements of the company and for the purpose of ascertaining whether the members would be prepared to take up debentures to enable the company to carry the project into effect. Copies of the report had been circulated to the members in the metropolis.

THE EDITOR OF THE MEDICAL JOURNAL OF AUSTRALIA explained the scheme. He advanced arguments in favour of its adoption.

DR. W. N. ROBERTSON, C.B.E., the Queensland Director of the Australasian Medical Publishing Company, Limited, favoured the proposals and expressed the hope that the members would support the undertaking.

A discussion ensued in the course of which it was suggested that the rate of interest payable on the debentures should be 7% or 8%. Many practitioners might be prepared to lend money if the interest was not less than that charged by the banks for overdrafts. It was pointed out that this was a matter that the Directors could consider at their next meeting.

After the Editor had replied to various questions, it was resolved that the scheme be approved and that the members be recommended to take up debentures. Some promises were given by those present.

NOTICES.

THE COUNCIL OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION has arranged the following provisional programme of the Branch meetings. The Scientific Committee reserves to itself the right to modify the arrangements, but it is hoped that no changes will be necessary.

November 1, 1922.

CLINICAL MEETING at the Children's Hospital, Carlton, at 8.15 p.m..

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

KINNA, ALWYN LESLIE, M.B., 1922 (Univ. Sydney), Molong.

THE undermentioned has been elected a member of the Western Australian Branch of the British Medical Association:

THOMPSON, GEOFFREY ASHBURTON, M.B., B.S., 1922 (Univ. Melbourne), Children's Hospital, Perth.

Correspondence.

DIATHERMY IN THE TREATMENT OF MALIGNANT GROWTHS.

SIR: With reference to the above paper by Dr. Kent Hughes in the issue of THE MEDICAL JOURNAL OF AUSTRALIA

dated August 5, 1922, there are some points which call for comment.

I wish to refer to his writings concerning rodent ulcers, in which I am particularly interested. For the past sixteen years I have been in touch with a great number of cases and during the same period have been in close touch with radio-therapeutic measures. He states that rodent ulceration is popularly considered a mild malignant growth. This is certainly not so amongst dermatologists. So far from being the case, the importance of this subject was brought forward before the whole Congress at Brisbane in August, 1921, by the Dermatological Section and a committee was formed to investigate the subject from all points of view, especially in regard to the prevalence in Australia of rodent ulcers, and to report at the forthcoming Congress as to measures for its prevention.

I agree with him as to the treatment of rodent ulcer by carbonic acid snow being of no use in cases infiltrating bone, but it is of undoubted use in some keratoses.

With regard to rodent ulceration the pre-rodent conditions met with are of great variety and with some the keratotic condition is transient, i.e., keratosis may be present at one time and clear up at another time without any special treatment; patients really should be treated by preventive measures before the formation of keratosis at all.

From these mild and transient conditions we pass on by gradual steps through many varieties to perhaps the most malignant, which are the ones appearing in the younger people, for the younger the person in which the keratoses appear, the more grave the outlook. Rodent ulcers occurring in persons under thirty years of age would have a much more grave prognosis than in those fifty years of age or over.

Once ulceration has occurred, the condition must always be treated gravely. Dr. Hughes's suggestion that penetration is more deep in these cases than it is superficial, is largely substantiated in fact. Weak doses of radium in such cases are an abomination and all, whether treated by diathermy or otherwise, should be kept under observation; on the slightest evidence of thickening or infiltration the treatment should be energetically undertaken.

Dr. Hughes has seen cases supposed to have had large doses of radium which are in a deplorable condition. Certainly there are such only too truly and I heartily agree with him that if there is any hope of improving the condition of these people, they should be given the benefit of it. He discusses treatment by radiation, but admits that he has no experience of it; but he is right, in my opinion, in saying that when bone or periosteum are involved the chances of curing by radio-therapy are poor. The patients do not always come for treatment in the early stages. I have seen a person in which the rodent ulcer was over twenty years' duration who had been using Holloway's ointment and various other medicaments; there was extremely extensive ulceration and, of course, no radium or carbon dioxide snow could be blamed for such cases as these. The use of radium and X-rays is incomparably better understood and managed now than it was ten years ago; consequently, results will also be improved.

With regard to the treatment of those small ulcerations or "senile degenerations of the skin," the advice to excise widely and deeply is in many cases utterly impossible.

In these extensive cases of severe keratosis protection from wind and sun and changes of temperature as much as possible, together with the use of lotions such as castor oil and spirit to the milder degrees and the use of radio-therapy to the resistant areas cannot be improved on.

Regarding recurrence, treatment by radio-therapy in sufficient doses will act as deep as or deeper than diathermy. The vast majority of cases of rodent ulcer treated by radio-therapy do not recur. The ones that do recur and that have been seen by Dr. Hughes, have either not been treated energetically enough or they had progressed too far when first seen (that is, had involved bone and periosteum) to be suitable for radio-therapy.

The production of epithelioma by rays is practically always in persons subjected to very oft repeated mild doses, such as occurred in the early workers, and in all my experience the only cases of epithelioma which I have come across, have been in those early workers.

The production of rodent ulcer by radio-therapy is not even suggested by anyone that I have heard of.

In summarizing the position with regard to treatment of rodent ulcer I would say that prevention by use of measures to combat exposure to sun and wind, especially in tender skins, is the first object. When evidence of senile degeneration is shown, the use of lotion, such as mentioned before, will suffice in many cases to keep the skin in good order for an indefinite period. Should the keratosis resist this treatment, then a number of procedures are available, of which treatment by diathermy may be one, but all cases of rodent ulcer do not commence in a similar fashion and consequently the variety of treatment must depend on the individual case. If the skin only is involved, I do not consider diathermy an equal in any way to radio-therapy, but should the ulceration be definitely involving the periosteum or bone, then excision or diathermy may be preferable.

I have seen some of Dr. Hughes's cases treated by diathermy at the Melbourne Hospital and am favourably impressed so far with the results in those cases affecting the deeper tissues, but the subject is a large one and, of course, can merely be touched upon in a letter.

Yours, etc.,

ROLAND R. WETTENHALL.

85, Spring Street, Melbourne,
September 21, 1922.

TREATMENT OF RODENT ULCER.

SIR: Those practitioners who do not possess a diathermy or deep radiation outfit, need not despair. Excision of rodent ulcer is quite satisfactory. It is quicker and cheaper, requires no general anæsthetic; the percentage of cures is, in my opinion, quite as high; there is no danger of persistent scaliness or telangiectasis of the skin—which one still occasionally meets with after X-ray treatment—and, furthermore, the tissue removed can be microscopically examined, if thought necessary.

I can strongly recommend the following method: Inject local anæsthetic—I use Waite's as a rule—with a fine, sharp hypodermic needle. Mark out the area to be excised with a scratch of the knife, then with scissors and forceps cut out the whole thickness of the skin defined, stop bleeding by pressure or ligature and let the patient stick a small disc of gauze in the hole with boracic ointment, as often as required until it is healed up. No stitching is necessary and it is surprising how quickly the skin grows over it and how little mark is left.

Yours, etc.,

"M.B."

September 26, 1922.

Books Received.

THE NEWER KNOWLEDGE OF NUTRITION: THE USE OF FOOD FOR THE PRESERVATION OF VITALITY AND HEALTH, by E. V. McCollum, Ph.D., Sc.D.; Second Edition, entirely re-written; 1922. New York: The Macmillan Company; Sydney: Angus & Robertson, Limited; Demy 8vo., pp. xviii. + 449, illustrated. Price: 21s. net.

Medical Appointments.

DR. C. O. F. RIEGER (B.M.A.) has been appointed Surgeon to the Zeehan District Hospital, Tasmania.

DR. H. G. D. BREIDAHN (B.M.A.) has been appointed Public Vaccinator at Stawell, Victoria.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xviii.

PARKSIDE MENTAL HOSPITAL, SOUTH AUSTRALIA: Acting Deputy Superintendent.
BUNDABERG HOSPITAL, QUEENSLAND: Anæsthetist.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmmain United Friendly Societies' Dispensary Friendly Societies Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

- OCT. 10.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 11.—Western Australian Branch, B.M.A.: Council.
OCT. 11.—Melbourne Pædiatric Society.
OCT. 12.—Victorian Branch, B.M.A.: Council.
OCT. 13.—New South Wales Branch, B.M.A.: Clinical Meeting.
OCT. 13.—Queensland Branch, B.M.A.: Council.
OCT. 13.—South Australian Branch, B.M.A.: Council.
OCT. 17.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
OCT. 18.—Western Australian Branch, B.M.A.: Branch.
OCT. 21.—Northern Suburbs Medical Association, New South Wales.
OCT. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
OCT. 25.—Victorian Branch, B.M.A.: Council.
OCT. 25.—South Australian Branch, B.M.A.: Branch.
OCT. 26.—Western Medical Association (Orange), New South Wales.
OCT. 26.—Brisbane Hospital for Sick Children: Clinical Meeting.
OCT. 27.—New South Wales Branch, B.M.A.: Branch.
OCT. 27.—Queensland Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated. All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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